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GEOGRAPHICAL
AGAZINE

JUNE 1947
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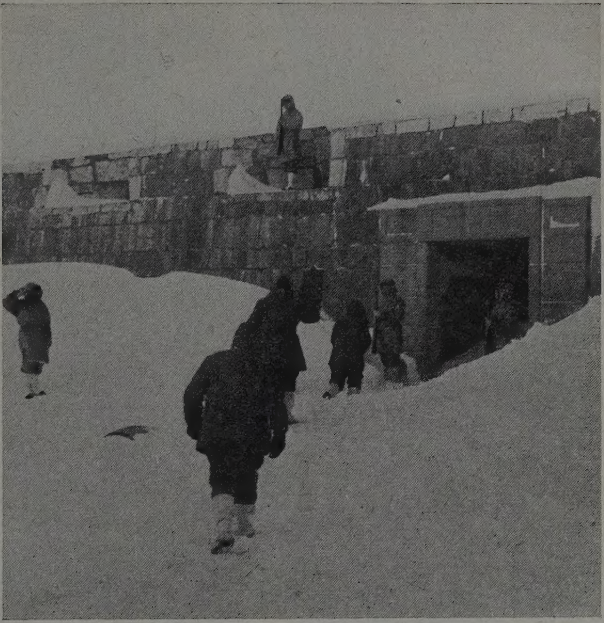
Travel in Canada's Northland

by Lt.-Colonel ANDREW CROFT



Fort Prince of Wales, the starting place of much Arctic exploration (including Samuel Hearne's famous journey in 1771 to the Coppermine River). Built in 1689 at the mouth of the Churchill River, and rebuilt in 1717, it remained for nearly two hundred years the Hudson's Bay Company's most northern post on the Bay

All Kodachromes and photographs from the Author

As I had been on three wintering expeditions to the Arctic before the recent war and knew how easy it is with experience and training to fend for oneself in cold conditions, the invitation to attend the Canadian "Exercise Musk-Ox" as British Observer came as a pleasant surprise. Instead of travelling uncomfortably by dog sledge we were to enjoy the luxury of Snowmobiles and air supply. It was an experiment to see whether a journey over such a wide variety of terrain as is found in the Canadian Arctic and Sub-Arctic could indeed be undertaken by the use of modern technique.

Until recently the method of travel in the Canadian Northland has altered little through the ages. During the winter the Eskimo is particularly active, since for nearly eight months in the year the sea is frozen over and provides hunting grounds which can be visited by dog sledge. Farther south, in the forest or bush country, is the habitat of the Indian. He travels by dog sledge and snowshoe, but during the summer months is able to move more freely by canoe over the innumerable waterways.

Intertribal raids among the Indians came to an end about a century ago and families began to live around the posts and settlements of the fur traders. In consequence they have almost become absorbed into the white race and there are now few Indians of pure stock. In order to combat hardship and destitution, special game preserves have been set aside for the exclusive use of both Indians and Eskimos, since hunting and trapping are the principal livelihood of these northern races.

The fur trade and the search for a North-West Passage were largely responsible for the exploration of northern Canada. In 1670 Charles II signed the Royal Charter granting Imperial powers over vast unknown territories to "the Governor and Company of Adventurers in England trading into Hudson's Bay". The Hudson's Bay Company was expected to promote discovery as well as trade and to solve the problem of the North-West Passage.

A whole century elapsed before any such exploratory journey of value took place. This was Samuel Hearne's third attempt to investigate Indian reports of copper-mines near some river which apparently emptied itself into a northern sea. Without any European companion, he set out from Fort Prince of Wales under the guidance of an Indian Chief named Matonabi, who at a youthful age had become an orphan and been adopted by the Governor of the Fort. They were accompanied by a large party of Indians with their wives and children, the country being well stocked with game. The following spring they reached a lake where they built canoes

A "husky" on his kennel at Fort Norman. Though able to haul only 100 pounds at less than half the speed of the Snowmobile, the sledge dog still provides the most economical and reliable mode of Arctic winter travel. In summer-time a good pack-dog can carry a load weighing from 35 to 40 pounds

and, as soon as the waters were ice-free, left their women and children behind and were soon descending the Coppermine River. Hearne was thus the first white man to see the Arctic Ocean, north of the American continent. On his return journey he saw numerous veins of copper worked by the Eskimos and later discovered a large expanse of water, which seems to have been the Great Slave Lake.

In 1789 Alexander Mackenzie, a member of the rival North-West Company, made an equally historic journey northwards to the Arctic Ocean. He too used Indian guides and in 102 days covered nearly 3000 miles by canoe before he finally returned to his starting point on Lake Athabaska. During this time he explored the mighty Mackenzie River which now bears his name.

The end of the Napoleonic Wars set free a number of experienced British sailors and it became almost a matter of honour to settle the problem of the North-West Passage. During the next forty years a series of remarkable voyages and overland expeditions were responsible for the exploration and mapping of the northern coastline and large areas of the Arctic islands. Travel was largely by boat or ship during the summer months, but long journeys were also made in winter by men pulling their own sledges. Only latterly during this period did the British adopt the normal Eskimo technique of using the dog team. Although the North-West Passage was discovered, it was not completely navigated until early this century, when Amundsen accomplished the feat in a power-driven ship.

The Canadian Northland can be divided into two regions—the Arctic and the Sub-Arctic. Their dividing line corresponds to the northern limit of forest. The Arctic includes approximately those areas where the warmest month of the year is colder than 48° F. and where the annual mean temperature lies below freezing point.

Except for the mountainous areas in the extreme east, such as Baffin and Ellesmere islands, most areas of the Canadian Arctic are reasonably flat or rolling country, to a certain extent boulder-strewn, with occasional clumps of dwarf willow and a covering in winter-time of one to two feet of snow. The terrain is windswept, drifts varying from a few inches in height to sometimes four feet, being steeper to windward than to leeward. Innumerable frozen waterways and lakes provide fast travel and natural landing-strips for gliders and aircraft, if wind-drifts can be levelled out.

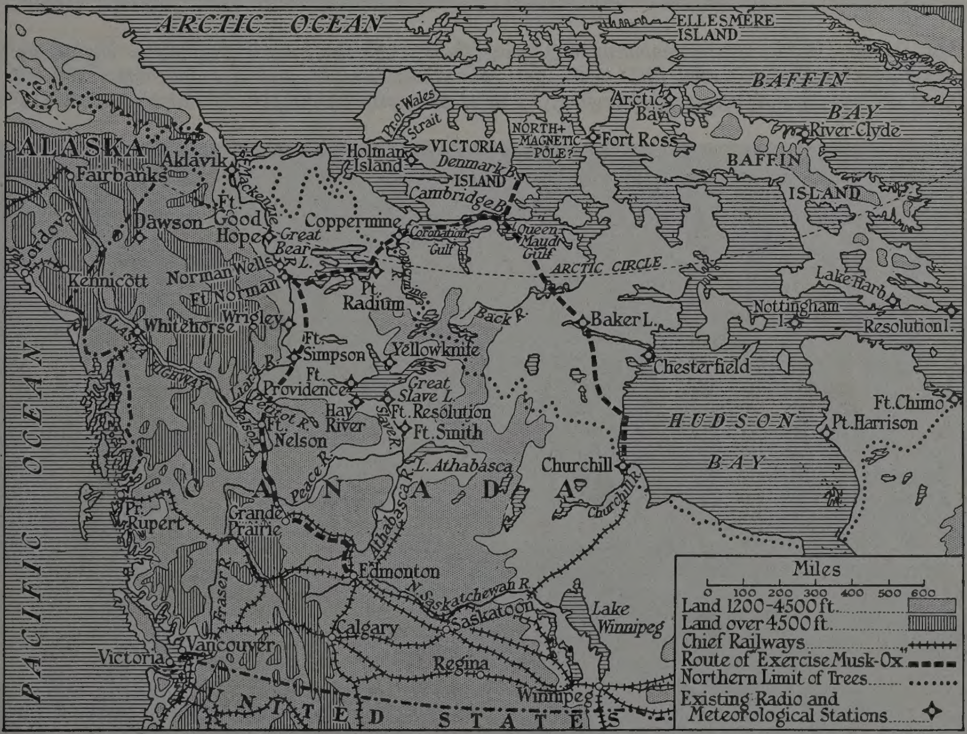
Temperatures drop to minus 50° F. or occasionally lower, and winds up to 40 m.p.h. are frequent although greater velocities are uncommon. To emphasize the importance of wind north of the tree line, cold-weather experts have recently introduced a graph system which provides a measurement of discomfort. Cooling is expressed in numbers of kilogram calories given off by a square metre of human flesh per hour. For instance, at minus 40° F. with a wind of 4 m.p.h. the chill "factor" is 1600, but with the much higher temperature of minus 12° F. and a wind of 20 m.p.h. the factor increases to 1800. Exposed flesh freezes at a factor of 1400. At Churchill in 1946 the maximum factor for January was 2600, whereas in February the maximum descended to 2400 but the minimum was as high as 1400.

During the month of May the thaw begins to take place. Marshy areas and weak, rotting ice soon restrict travel. By late July, however, the waterways and subsequently the sea have become relatively clear of ice, except for certain areas among the Arctic islands; nevertheless movement on land is slower than in winter-time. Mosquitoes can be annoying, but are fortunately not malarial.

The Sub-Arctic largely consists of bush, forest and waterways. In winter temperatures are often just as low as in the Arctic but, due to the comparative absence of wind, conditions feel very much warmer. The snow is soft and about two to four feet deep.

The thaw normally arrives about six to eight weeks earlier than in the Arctic and is more pronounced owing to the trees and the greater depth of snow. During the months of April and May the numerous waterways are becoming ice-free and in summer-time travel conditions are at their best. By this time mosquitoes have become a serious menace.

The main object of "Exercise Musk-Ox", which took place in the late winter of 1945–6, was to see whether tracked vehicles, dependent entirely on air supply, would prove a practical and economical method of winter and spring travel in opening up the vast northern territories of Canada. The tracked



A. J. Thornton

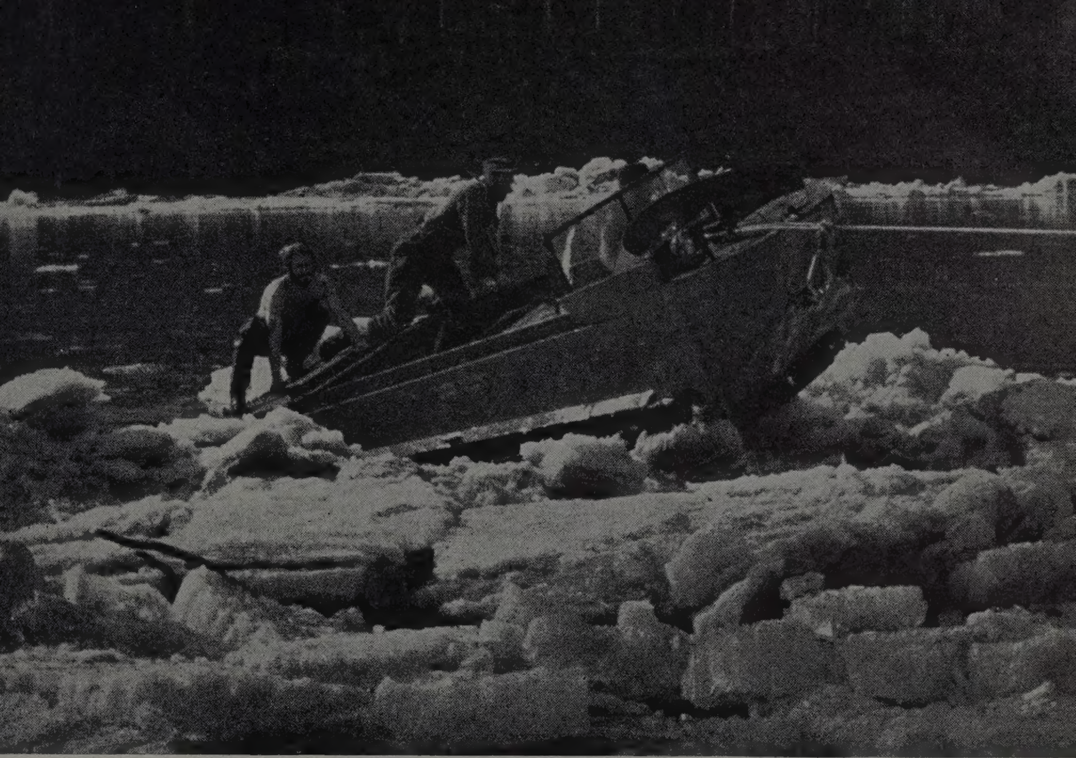
vehicles selected consisted of eleven Canadian Snowmobiles, each towing two sledges, and one American Weasel, towing one sledge. All supplies were to be landed by aircraft or glider or, alternatively, dropped by parachute. Since the principal air bases, Churchill and Norman Wells, were both too far distant from the northernmost part of the route, for Dakota aircraft an additional air-strip was made on the ice at Baker Lake, 400 miles north of Churchill, by a D.6 bulldozer. Equipped with a blade and a towing winch, this type of vehicle is excellent for making trails through the forest, for the construction of air-strips and for hauling heavy freight.

The expedition left Churchill in mid-February and was due to arrive at Edmonton on May 5. The first stage of the journey was uncomfortable but exciting, since no one knew how the vehicles would perform. The route to be followed led northwards up the west side of Hudson Bay as far as Baker Lake and thence overland to Queen Maud Gulf. Temperatures descended to minus 47° F. and winds of up to 40 m.p.h. were all too frequent. Furthermore, the speed of the vehicles over the bumpy, windswept frozen ground was often limited to the amount of pitching that a crew could physically tolerate. On the third day the tracks of the Weasel showed signs of an outward camber. As it was obvious the suspension was not strong enough to take the terrific pounding, the Commander, Lt.-Colonel P. D. Baird, sent the vehicle and crew back to Churchill.

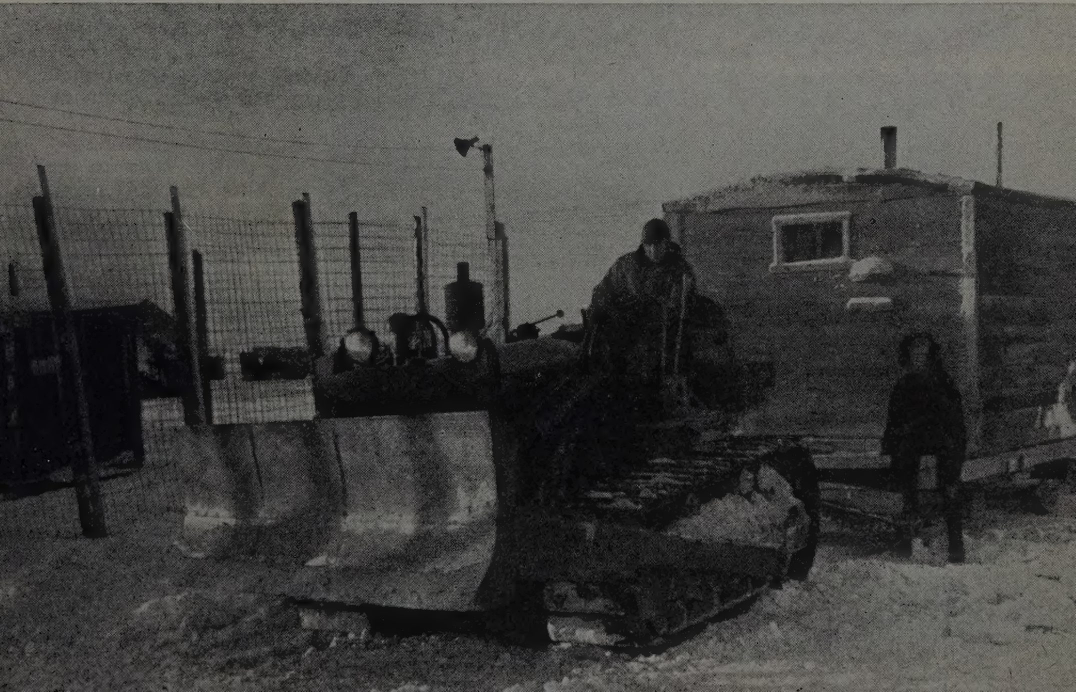
In cold weather there was no great difficulty in starting up the engines, provided adequate dilution of the oil was carried out at any halt of more than five hours' duration. When repairs had to be undertaken, a wall of snow-blocks was usually erected around the mechanics at work, who were kept warm with the assistance of hot drinks and the heat of a blow-lamp or stove.

Breakdowns and bad weather soon caused us to be well behind schedule and we had to force the pace. On one occasion certain crews had no sleep for 72 hours. This was partially due to a blizzard which became so severe that it was impossible to proceed and equally impossible to erect our tents. Each crew of four men tried to sleep in its Snowmobile, but the cramped space and the difficulty of keeping warm were not conducive. Periodically the engine, situated in the rear of the vehicle, had to be warmed up and, as there was a tail wind blowing, many of us unknowingly were soon suffering from toxic fumes. Finally,

The Snowmobile, seen here combating the spring thaw, is driven by a V.8 Cadillac engine, has three-foot-wide rubber tracks fitted with steel cross-links, weighs just over four tons, and can travel up to 25 m.p.h. over a good surface. Ten of these vehicles completed "Exercise Musk-Ox"



(Above) *The amphibious Weasel, though probably more efficient than the Snowmobile in soft snow, is not sturdy enough for bumpy, frozen Arctic terrain.* (Below) *The D.6 bulldozer can clear air-strips and forest trails or haul 40 tons of supplies over fairly flat land, travelling at about 2½ m.p.h.*



when the blizzard diminished and we got out of our vehicles, at least one-quarter of the personnel fell prostrate on the snow.

North-west of Baker Lake the country is largely unknown. In fact, the only mapped sector is along the Back River, explored by Captain Back, R.N., in 1833. It was reported that mountains might reach a height of 4000 feet, but the actual height traversed was only 600 feet. The country rises in a series of bare rocky ridges, which took a heavy toll of the wooden sledge-runners.

Caribou are widely distributed throughout the Canadian Arctic and nearly three million of them are supposed to roam the "barren lands" west of Hudson Bay. We saw a few scattered herds, but in winter-time the vast majority seek the shelter of the forested areas farther south. Other animal life observed on the journey included white, blue, cross and red foxes, lemming, wolf, wolverine, hare, seal and polar bear.

Arriving on the sea-ice north of the American continent, we began the second stage of the journey by crossing Queen Maud Gulf to Victoria Island. Thence our route was to proceed south-westwards to Coppermine and Great Bear Lake. One of the many aspects of research which we were studying was magnetism. On Victoria Island the distance to the Magnetic Pole was probably about 200 miles, although the position of the Pole is at present uncertain. A series of observations at Denmark Bay showed that the variation there is at least 20° E. less than that shown on available charts.

The sea-ice surfaces, although superior to land travel, were in Coronation Gulf not so smooth as in Queen Maud Gulf. A route had to be found round the worst pressure-ice which, due to the prevailing northerly winds, predominated off the northern coasts of any land areas. The actual average thickness of the ice was over six feet. Only once did the vehicle which I was driving sink ominously beneath me, but I trod on the accelerator and somehow we reached firmer ice.

Coppermine was the last Eskimo settlement on our route and the scene of our first glider operation. Although not fitted with ski, the glider successfully landed a spare engine in soft snow, and was later "snatched" off without apparent difficulty. South of Coppermine soft going was encountered. Spruce trees soon began to appear for the first time since leaving the vicinity of Churchill, and on the shores of Great Bear Lake we were in the forested areas of the Sub-Arctic.

Except for four large pressure-cracks, caused by movement of off-shore ice relative to fixed in-shore ice, the surfaces at the northern end of Great Bear Lake were excellent. Here an accident took place. The pressure-cracks were not always frozen over but were filled with treacherous slush. In crossing one of them diagonally instead of at right angles, a Snowmobile tilted over at an angle of 45° and became partially submerged in the open water.

Fortunately we were only two miles from Port Radium, where the uranium for atomic energy is mined. Engineers at once gave their assistance, but it took a whole day before the Snowmobile was recovered.

The thaw had already begun and it was comparatively warm at Port Radium carrying out thorough overhauls of the vehicles. The pneumatic tyres which had hitherto remained permanently frozen were now pumped up or renewed. Meanwhile urgent telegrams were received warning us that unless we hurried the rivers farther south would be open and might halt the expedition.

The last stage of the journey was via Fort Norman, thence southwards for 870 miles along a tractor trail, which joined the Alaska Highway at Fort Nelson for Edmonton. We had no difficulty over the remaining 180 miles across Great Bear Lake, since pressure-cracks were crossed with the help of 12-foot lengths of timber. There was open water at the mouth of Great Bear River due to the rapids downstream. Near by we spent a long and arduous day covering only thirteen miles through the bush. A tractor without a blade had made a trail consisting of knocked-down trees. Tree-stumps fouled the tracks and sledge-runners and a working party had to walk ahead axing, sawing and removing timber.

After leaving Fort Norman each Snowmobile towed only one sledge. Due to the soft snow, two Snowmobiles were sent ahead as trail-breakers and it was found faster to travel by night. Each evening we left about 8 P.M. and travelled till about noon the next day. We then enjoyed a few pleasant hours' sleep in the sun, often stripped to the waist.

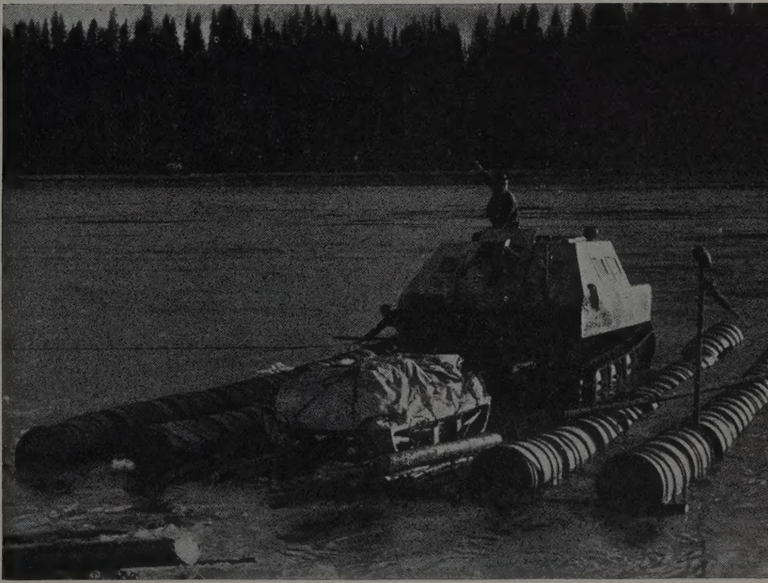
We were now embarking on the most difficult and therefore the most interesting stage of the journey. Timber continually blocked the trail and had to be removed. The trail-breakers kept going for as much as sixty-five hours on end, one party covering 166 miles in a continuous run of forty-three hours. There were numerous breakdowns, but engine assemblies were when necessary dropped by parachute and quickly installed in the vehicles.

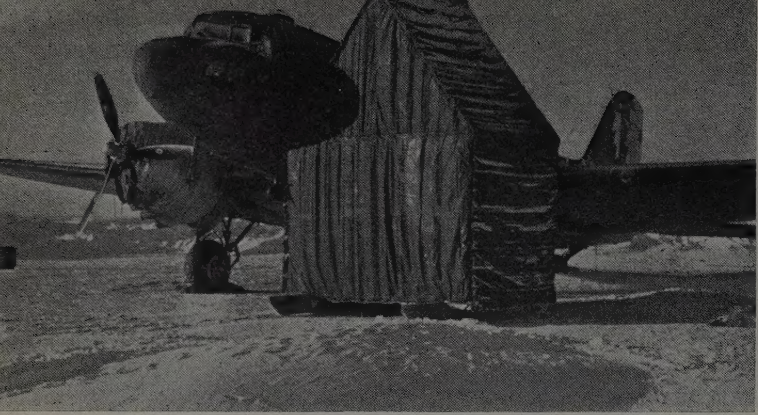
The first major crossing was the mile-wide Liard River. This was still covered by slushy,

hen reached by the Musk-Ox
pedition in late April, the
elson River was fully open,
cept for ice-floes being car-
ed downstream by a strong
rrent. On the northern bank
l vehicles were waterproofed
ith grease and the framework
a large raft was manu-
ctured from locally cut spars

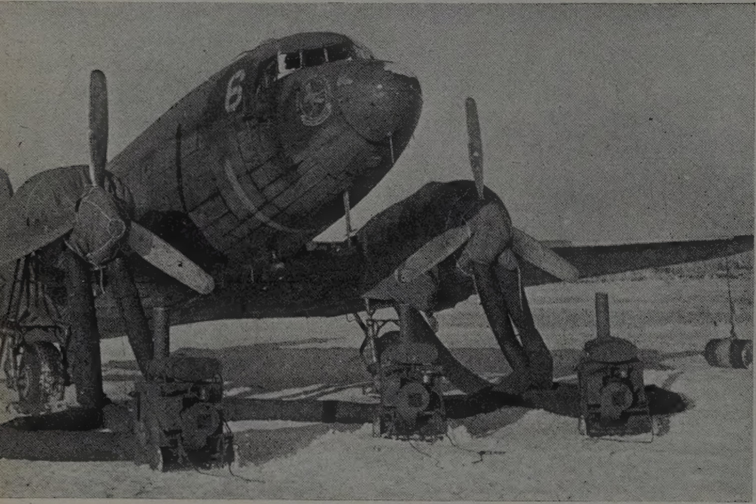
o this were lashed forty 45-
allon petrol drums, dropped
y aircraft which had flown
hem in from Fort Nelson. The
ompleted raft was then eased
own rollers and floated off-
hore. Meanwhile, a tractor
ad arrived from Fort Nelson
nd was waiting on the south
ank to haul the raft across

ach Snowmobile, in turn, with
s sledge in tow, was then
iven onto the raft and pulled
fely across the river, sub-
quently proceeding southwards
long the Alaska Highway. The
eration occupied two days of
e total of 78 spent in com-
leting the 3000-mile journey
om Churchill to Grande Prairie

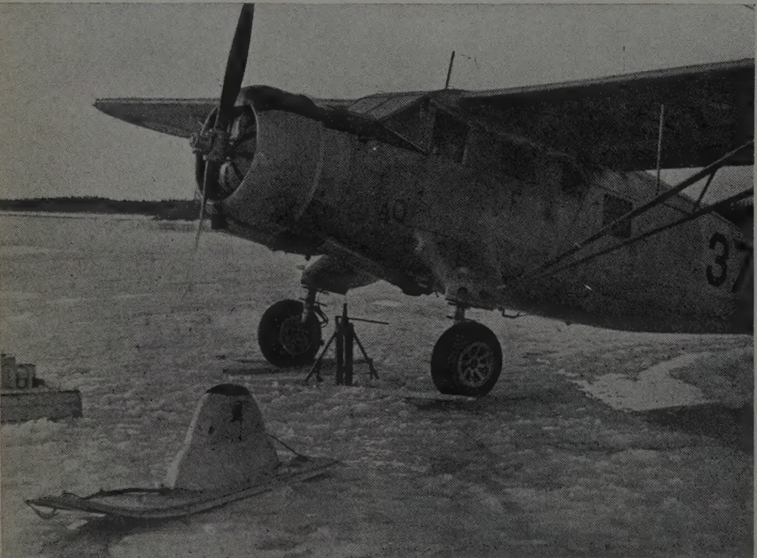




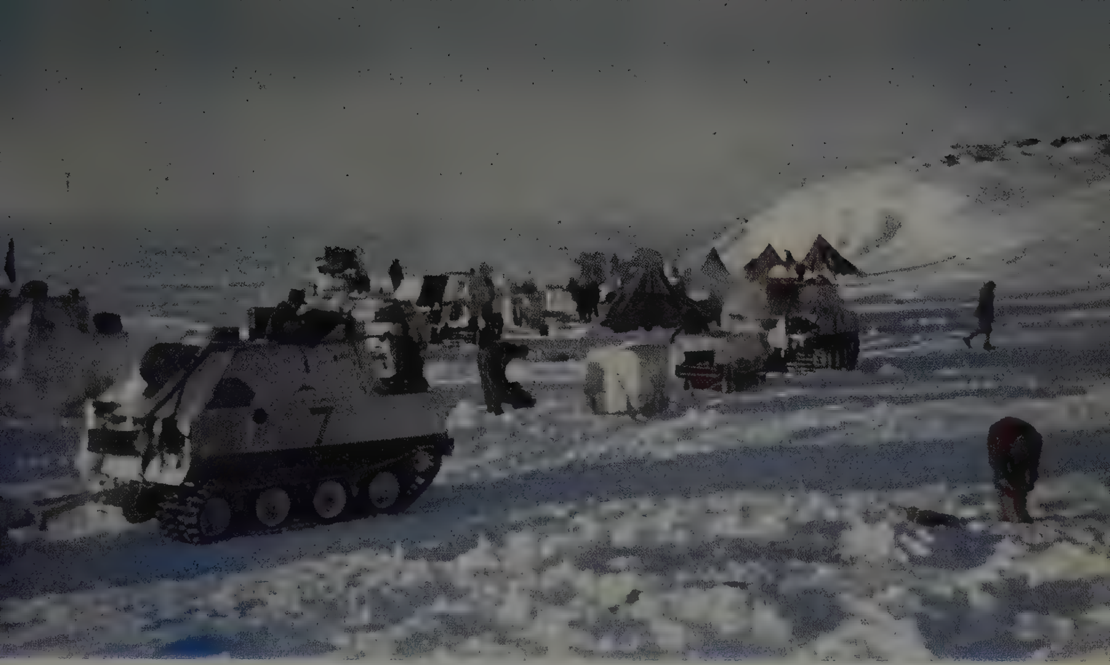
Throughout "Exercise Musk-Ox" all supplies were landed by Dakota and Norseman aircraft and Hadrian gliders, or were dropped by parachute. For supply purposes in the Canadian Northland a plane is required with greater range and pay-load than the Dakota (here shown with one engine under repair behind a temporary shelter)



To maintain efficiency of engine and crew in cold-weather conditions, aircraft should be provided with internal heating. The Dakota's batteries, instruments, controls and wireless are preheated with hot air for about half an hour before the take-off. The same Nelson pre-heaters are used for about two hours to warm up the engines



The single-engined Norseman monoplane, flown for years in the Canadian Northland by bush pilots. Able to land on wheels, floats or ski (one of which lies detached in foreground), it is still probably the best all-round light aircraft for Canada, its use being limited only by its range and the amount of cargo it is capable of carrying



The "Musk-Ox" expedition striking camp on the sea-ice, near the shore of one of the many Arctic Islands, each crew being provided with one double-walled, five-sided tent. To the south stretched the North American continent, consisting of rolling country punctuated with sandstone rock ridges

rotting ice. Every few yards a water-spout would indicate where holes had worked through to the river water below. Although the crossing was wet, no disaster occurred.

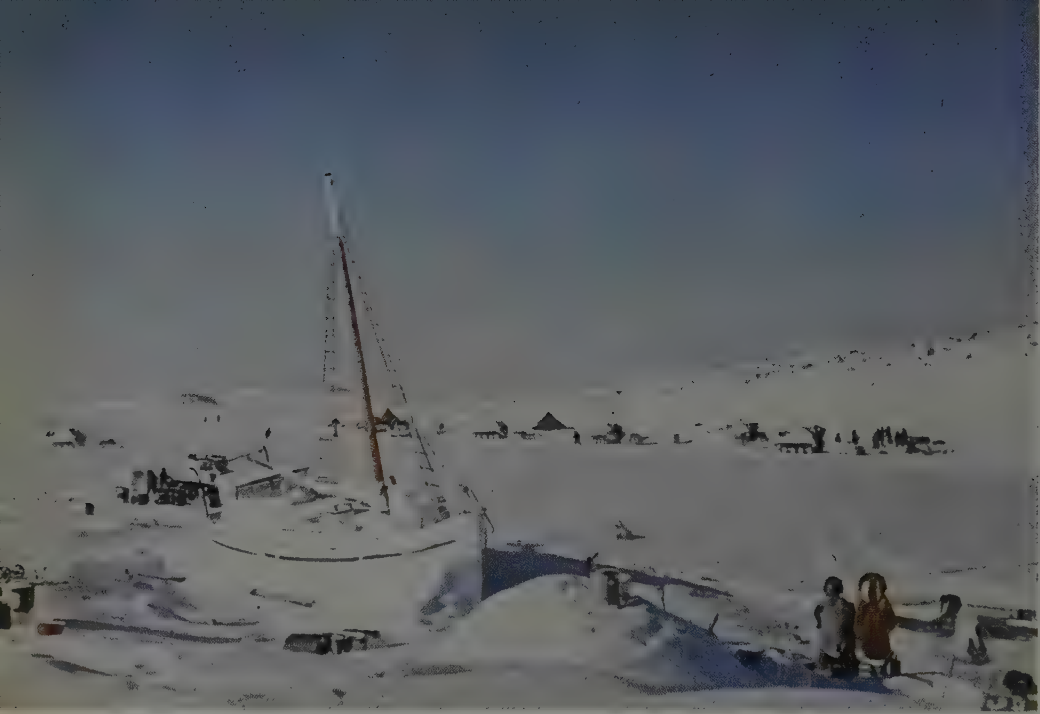
Another river was open but once again we were lucky. The water-level was rising rapidly, but by brilliant driving of the leading vehicle the river proved just fordable. An advance party of four men, landed a few days previously by glider, had reinforced the weak ice of the Petitot River with corduroy "matting". They had also constructed makeshift bridges across three other rivers. The broader Nelson River was also open but this we crossed by improvising a raft.

Eventually the dry dust of the Alaska Highway defeated us at Grande Prairie, since it had penetrated and abrased the engines. The Snowmobiles and personnel were therefore sent by rail to Edmonton where we arrived on May 6—one day behind schedule.

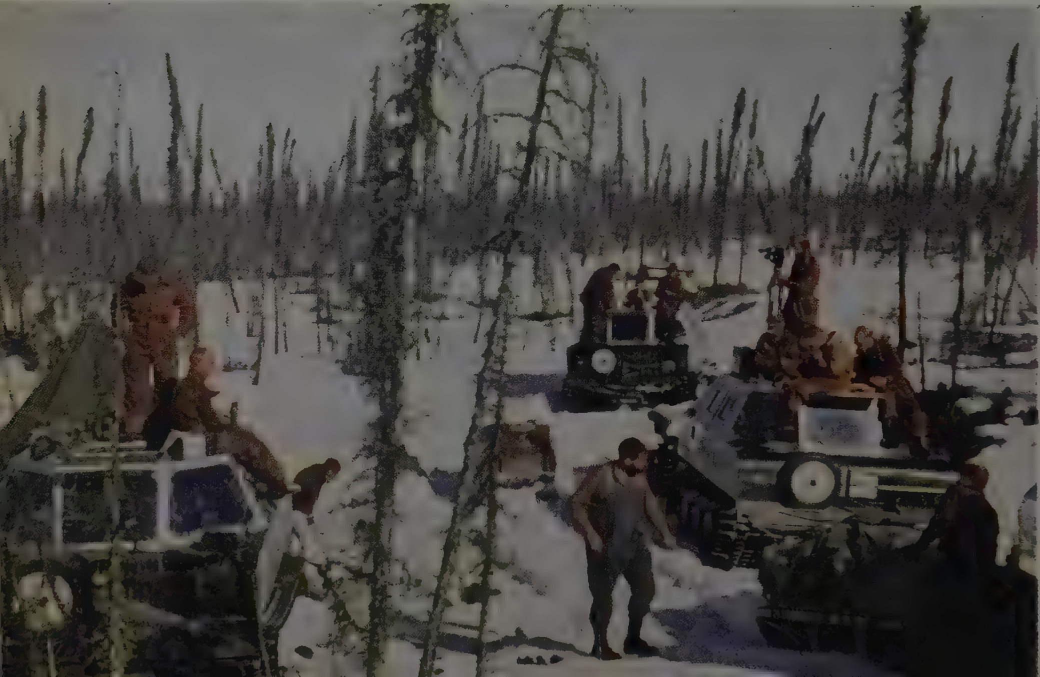
The expedition had been halted on twenty-nine days out of the seventy-eight spent on the journey, six days on account of blizzards, two in crossing a river by raft, one day due to a major breakdown and twenty days for maintenance purposes at the eleven settlements along the route. An average of nearly sixty miles per travelling day had been covered during the 3000-mile journey.

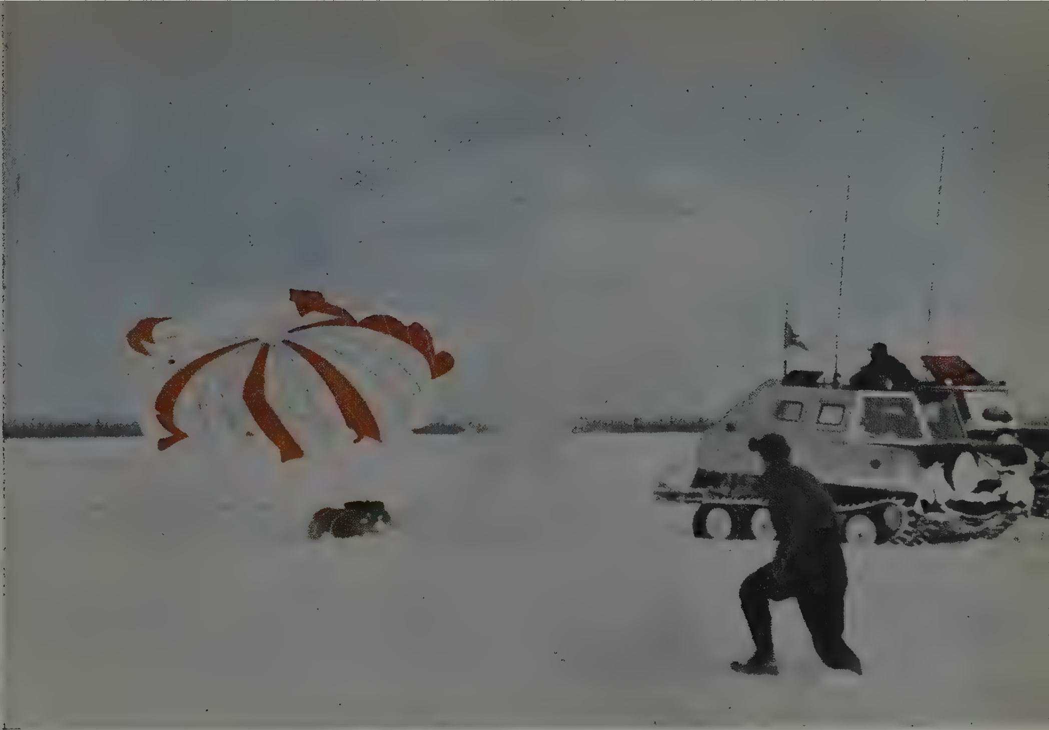
No undue difficulties had arisen in the general technique of air supply. It is already obvious that the aircraft and glider have an unlimited rôle to play in opening up Canada's northern territories. Large expanses are as yet unmapped. The work, however, is gradually being carried out, priority being given to the regions which contain the most valuable and easily accessible mineral resources. The study of magnetism is of almost equal importance. Last summer the Canadian Government began its post-war research programme by establishing at Baker Lake an air-strip and a meteorological and magnetic base. Within the next few years it is hoped that similar stations may be set up, each within reasonable flying distance of another, in order to link up the remoter areas of the eastern Canadian Arctic and the Archipelago. Such a programme would prove invaluable, not only to provide bases for scientific research but also to facilitate the opening-up and exploitation of these areas. They contain various mineral resources which commercially are too expensive to exploit until the problem of transport has been overcome.

During the recent war, Sub-Inspector Larsen of the Royal Canadian Mounted Police navigated the North-West Passage on two occasions, completing the second voyage in an east-to-west direction, via Prince of

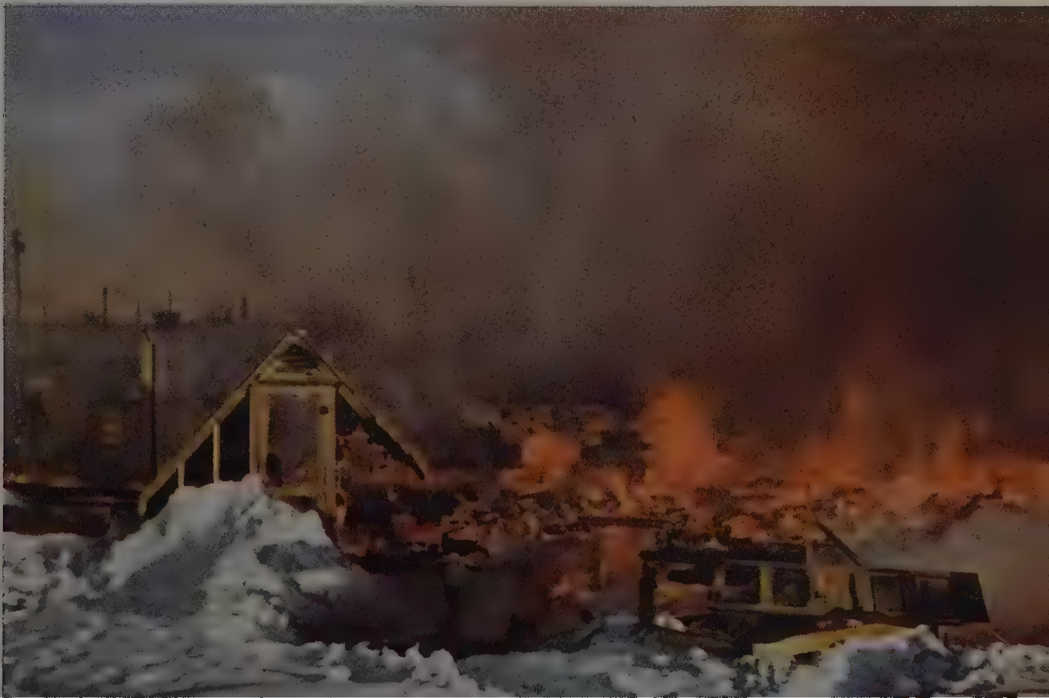


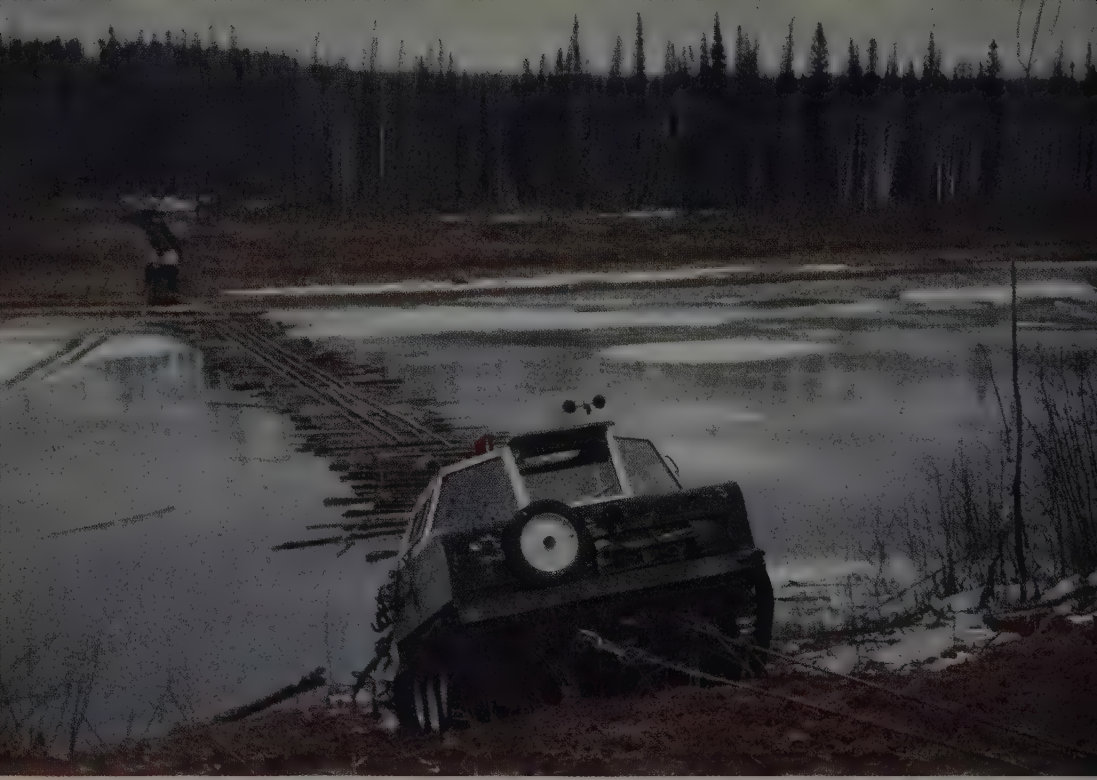
(Above) *Our first sight of the Arctic Ocean: a camp at the Eskimo settlement of Perry River on Queen Maud Gulf. The motor sloop belongs to the Eskimo headman, who is an "independent trader".* (Below) *When we reached the soft, rapidly melting snow of the Sub-Arctic, our journey became a race against the break-up of the rivers farther south and we travelled at least 16 hours a day*





(Above) *A 45-gallon drum of petrol, attached to two parachutes, landing alongside a Snowmobile on one of the many lakes in the Sub-Arctic.* (Below) *Oil heaters used to warm the hutted camp built at Churchill by the Americans during the recent war proved highly dangerous. One apparently exploded at night-time, but the fire was put under control before it could spread to other buildings*





The crossing of the Petitot River was prepared by an advance party of four men, who together with a Weasel were landed in the area by gliders. When the last vehicle crossed there was a 40-foot gap at each end of the corduroy "matting" covering the weak ice, but the centre was still sound

Wales Strait, in only eighty-six days. This voyage was as praiseworthy as any of those in the earlier days of sail. It suggests that a determined and experienced navigator using a small, highly-powered wooden ship can navigate the Passage in any normal, comparatively ice-free summer. Air reconnaissance of prevailing ice conditions and use of ice-breakers in certain areas, combined with a network of meteorological and magnetic stations, would prove invaluable in assuring an easier and safer passage.

The rôle of the Arctic Institute, established at Montreal in 1945, is to carry out work in North America similar to that undertaken for the polar regions by the Scott Polar Research Institute at Cambridge. Its primary object is to encourage the objective study of Arctic conditions and problems and to classify records relating to these northern regions. By assisting students and acting as a coordinating centre, the Institute hopes to foster a thorough investigation of the Arctic based on a firm foundation of scientific fact.

Today there is a greater interest than ever before in the opening-up and development of the Arctic regions. Mining and commercial undertakings may soon be able to make full use of the aeroplane, the glider, the bulldozer and the Weasel or Snowmobile. Unless assisted by local facilities, which only the government can provide and which may well originate from the meteorological stations mentioned above, the geographer or student cannot afford to take advantage of modern technique. Larger expeditions, however, would benefit greatly by using aircraft for reconnaissance, air supply, survey and for establishing bases or depots. The Snowmobile requires certain modifications and is as yet too uneconomical unless fuel can be provided by air. The Canadian Government has a unique opportunity to contribute to Canada's wealth and renown by fostering research and providing a tracked vehicle of commercial importance. Until this day arrives, the dog team for overland winter travel will still remain supreme.

Animals in Art

II. South African Rock Paintings

by M. C. BURKITT

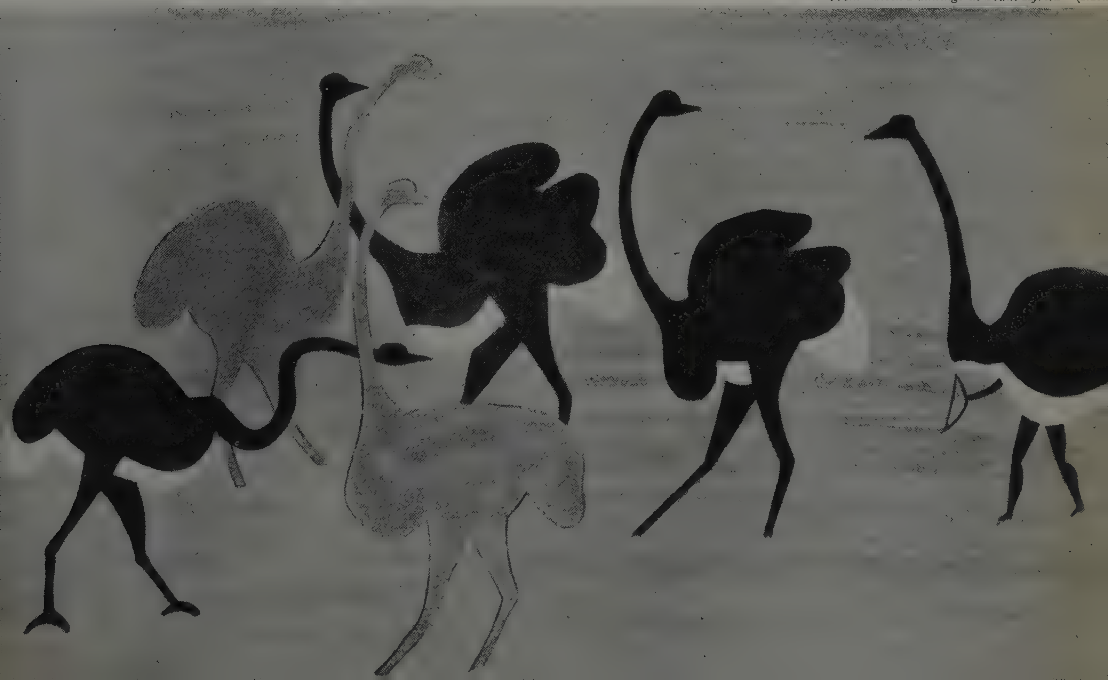
PAINTINGS in rock shelters are found in many parts of Africa, and engravings on rock surfaces are also known. In South Africa this art is loosely grouped together and dismissed as the work of the Bushmen, but these South African paintings and engravings are not all of the same age, nor all the work of this now nearly extinct people. In Southern Rhodesia, for example, there are phases of the paintings which apparently antedate anything found in the Union of South Africa, and in the latter area, while the more recent paintings are comparatively modern (Qing, the last Bushman painter, died in the middle of the last century), there are earlier phases in the art which clearly date to a remote period. In this article I am confining myself entirely to the sub-continent and there four regions can be distinguished: (1) Southern Rhodesia, (2) the Union of South Africa, north and west of the mountain backbones, (3) the Union of South Africa, south and east of these same highlands, (4) South-West Africa. There are also rock engravings in various districts, more particularly in the region of Kimberley.

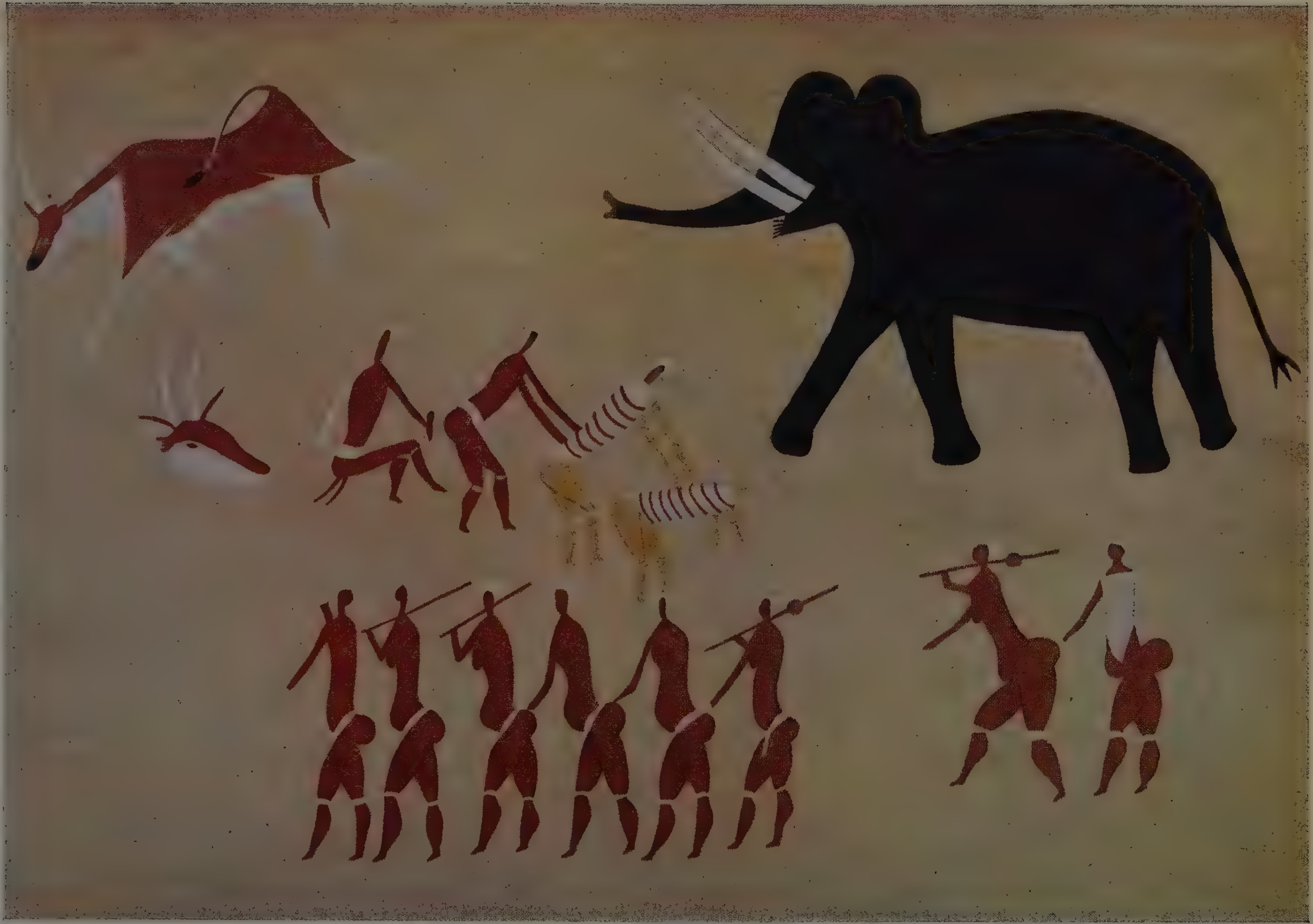
The animals figured are those living in the district at the time; eland, koodoo, ostrich and elephant all occur, as do snakes. A very interesting panel, a reproduction of which appears below, shows a herd of ostriches clearly somewhat troubled. The explanation is obvious when it is observed that one of the ostriches is really a man masked as a bird, from whose middle projects the hunter's bow! Doubtless this picture portrays the way these animals were stalked, but there may be also a magical significance, a prayer that the hunt may be successful.

Innumerable human beings are also depicted. These latter sometimes represent Bushmen, the typical steatopygia being indicated. At other times other races were intended, Hottentot, Bantu and occasionally

A Bushman, disguised as an ostrich (note his protruding bow), stalking a herd of ostriches—three male and two female. From rocks in the Witte Bergen, Colonial Native Reserve, Union of South Africa

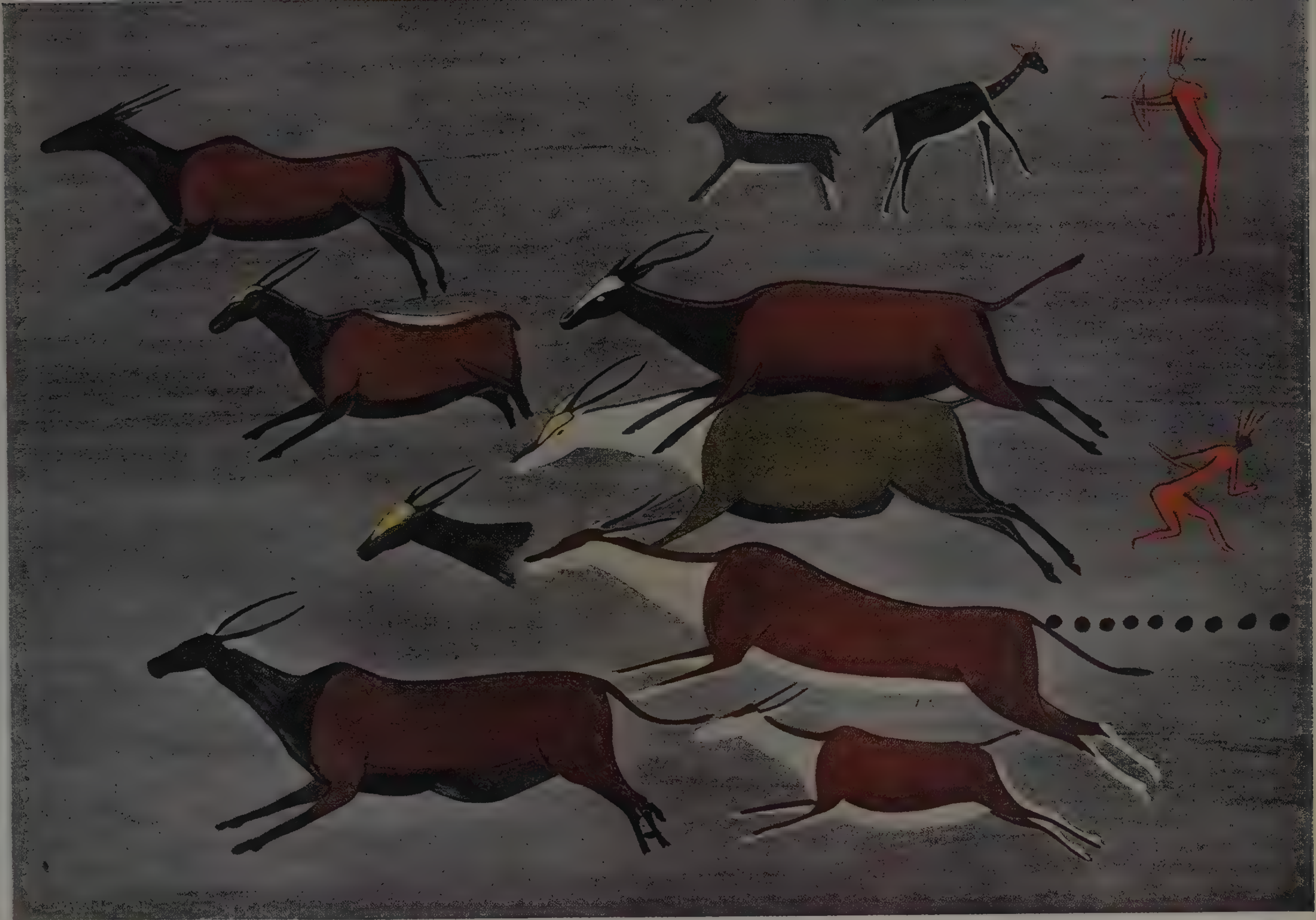
From "Rock Paintings in South Africa" (Met





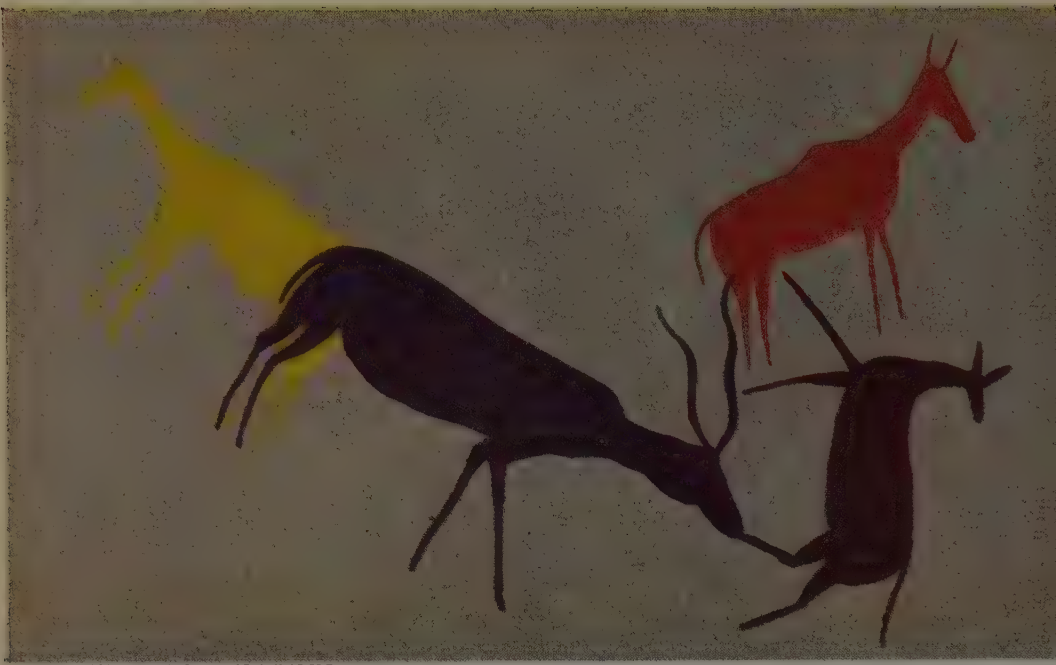
From "Rock Paintings in South Africa" (Methuen)

A panel from the Orange Free State with paintings that are not all of the same age. Some of the steatopygous Bushman women carry digging sticks, i.e. sticks weighted with stones. The elephant's tusks have disappeared since G. W. Stow made this copy about seventy years ago



From "Rock Paintings in South Africa" (Methuen)

As in the case of the elands on the opposite page, those depicted in this spirited hunting scene reveal a peculiar method of painting adopted by Bushman artists at one period, in which the colours do not grade into each other, being applied in masses with hard, unblurred junctions



From "South Africa's Past in Stone and Paint" (C.U.P.)

A rock painting from Makumbi, Salisbury, Southern Rhodesia, which illustrates the two phases mentioned in the text. The plum-coloured figure belongs to phase II, and a study of the super-positions shows that it is painted over and is more recent than the other three figures, belonging to phase I

'foreigners', as shown by their dress. In the case of the latest paintings white settlers on horseback are occasionally figured. Scenes are common, cattle raiding for example and representations of ritual observances such as the Frog dance, for many of which the interpretation is no longer possible. Roughly speaking, it may be stated that the more elaborate scenes are the most recent in age. The earlier phase of the art such as we find in Southern Rhodesia shows little or no intentional grouping.

The paintings are only found in rock shelters which give some protection from the weather. As a rule they are in full daylight. Various colours were used, usually derived from mineral oxides and carbonates of iron, which give various shades of red and yellow, but other colours are not unknown; a phosphatic mineral in one locality has furnished a bluish colour, and white is common at one period. Black paint is also frequently used, especially in some of the later phases. A few of the later paintings were made with vegetable colours—for example, *Euphorbia latex* was occasionally used as a white paint.

It is obvious to anyone studying this art on the spot that the animals are not all painted in the same style, and a chronological sequence of these styles can be determined by studying the various palimpsests that occur in the four districts above mentioned. The word phase as used in this article means a style or group of styles which is always found in the same chronological order as regards other phases. In Southern Rhodesia the artists, at certain times, seem to have preferred certain colours; thus in the first phase in Southern Rhodesia we find paintings in light yellow, bright red and brown, but never in plum colour, this latter always being associated with the next phase which invariably overlies, and is therefore more recent than, the styles of phase one. This colour sequence is of course quite local in importance and cannot be applied to areas outside Southern Rhodesia, but within that country it can be very useful for the student. It would seem that the first phase in Southern Rhodesia is earlier than anything that appears in the Union of South Africa.

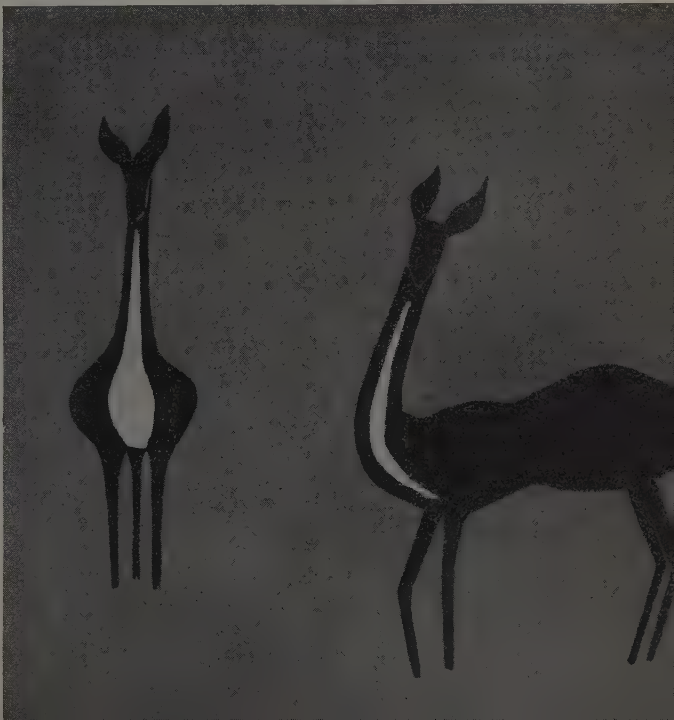
Styles of the second phase appear among

the earliest paintings found in the Union. While the differences between the styles are sometimes unmistakable and can be recognized at first sight, in other cases the dissimilarity is not so startling and, while clear on the spot, is less obvious in reproductions where, after all, the personal equation of the reproducer necessarily 'flattens out' to some extent the differences between them. I do not propose to describe in detail the various styles and phases in the different areas; except as regards the earlier phase in Southern Rhodesia, there is a general similarity, although some differences are obvious. Bichromes and polychromes do not occur in the earlier phases, and representations of human hands have only been discovered near the south coast. This article is meant to stimulate curiosity; more detailed accounts must be looked for elsewhere.

The rock engravings occur on boulder-strewn kopjes. Here again various styles—engravings, pocking, etc.—can be noted and chronological sequences determined. As a rule the boulders are dolerite, and this weathers to a dark mahogany. The patina of the older drawings is that of the rock, but the more recent styles have a much fresher appearance. Naturally the fine detail found in the case of the paintings is not possible in the case of the rock carvings, nor do we often find anything in the nature of scenes or groupings.

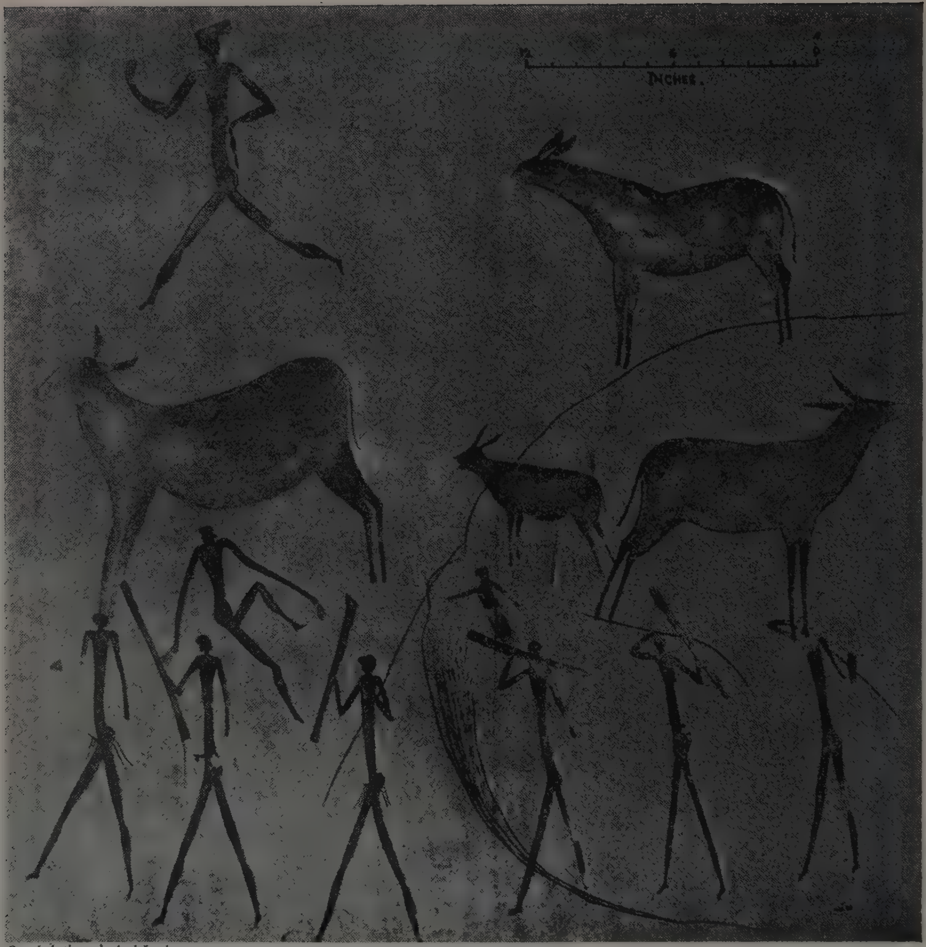
The motives underlying the production of this art are not known. There seems little doubt that in some cases at any rate Bushmen did live in the painted rock shelters, and the motive then might have been decoration or desire for expression. On the other hand sites are known where nobody could have lived, and where no industries have been found. Furthermore, as has been said, ritual observances, some of which have been interpreted by Qing and other Bushmen, do occur, and in this case the art may have had a ritual significance. One panel in the Transkei represents some Bushmen being enslaved by tall 'foreigners', there being in a corner a Bushman armed with a bow and arrow, shooting at them. Does this represent an actual scene, or maybe rather a prayer?

As has been said, rock shelter art is not uncommon in many parts of Africa and one cannot conclude without saying a word or two about the relationship between the art as found in South Africa and elsewhere. Roughly speaking, cultural movements into the sub-continent from the north have taken place throughout prehistoric times, and it should be remembered that prehistory in South Africa only terminated in the 17th century of our era. The Bushmen themselves claim to have come from the north and they have been equated with the 'Tenks' whose dancing powers were well known to the Egyptians of the earlier dynasties. There are paintings, too, in the south of the Sudan which recall some of those in South Africa. But perhaps the most interesting similarities are those between the early phases in Southern Rhodesia and the well-known rock shelter art found in Eastern Spain, a part of which seemingly dates to late palaeolithic times. The similarities are indeed so striking that, if the differences in the kinds of animals figured are forgotten, one might almost breathe the word identity. The peculiar elongation of the human form, always more conventionalized than the animals, makes it impossible



Two charming silhouettes (originals terracotta and white) from South-West Africa. Only a bold master hand would have attempted a full-face animal picture, or have omitted the fourth leg

From "Bushman Art" (O.U



Royal Anthropological Institute

The peculiar elongations of the human figure mentioned in the text are well illustrated in this reproduction of paintings (originals chocolate, red and yellow) from Bambata, Southern Rhodesia

not to connect the two art groups. Connecting links in the chain between them are not unknown—there is one site, for example, in the Southern Sahara—but with great stretches of desert between little investigation from this point of view has been undertaken. Until recently little interest was taken in these South African paintings and engravings, though a few pioneers like Dr Bleek and G. W. Stow had fortunately furnished us with rich material before it was too late. But now, at long last, the authorities have woken up to the value of their past records, and the Bureau of Archaeology in South Africa, under the able leadership of Professor C. van Riet Lowe and others, has started a systematic study of the prehistoric records in the country and their careful preservation. Such books as Miss Bleek's reproductions of Stow's copies, H. Obermaier's and Kuhn's *Bushman Art in South-West Africa*, and Miss Wilman's tome on the ' Rock Engravings of Griqualand West and Bechuanaland ' provide the student with rich material for study, and more may be expected in the not too distant future.

Constantinople and the Straits

A Long View. I

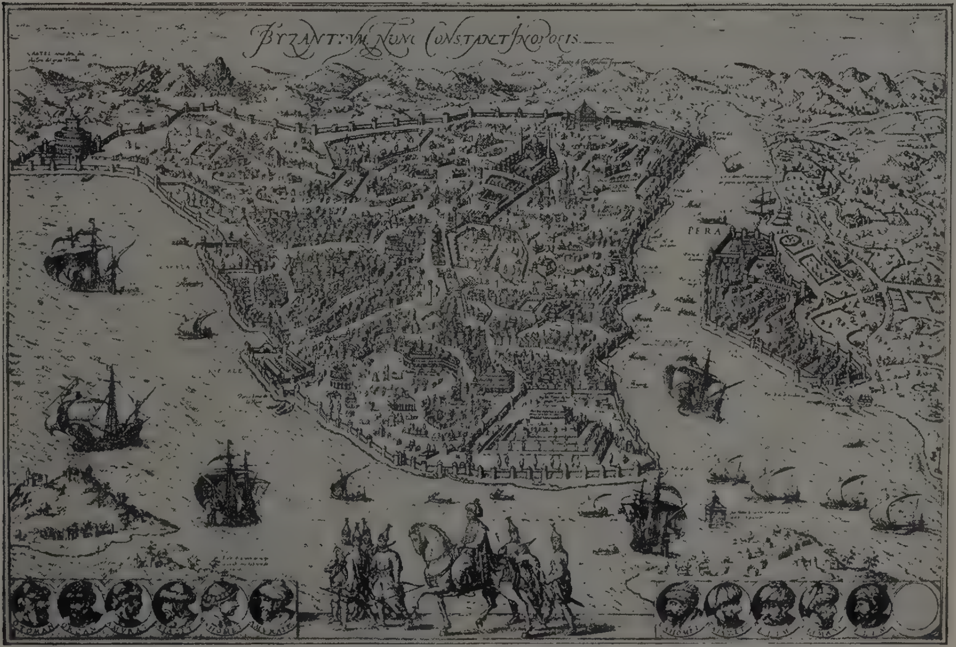
by A. C. EDWARDS

Mr Edwards comes of a family connected for a hundred years with Constantinople and has spent the greater part of his life in the Near East. He is thus well fitted to take a long view of the forces that have been brought to bear in the past upon that ancient city (once Greek Byzantium, now Turkish Istanbul) and the Straits of which it stands guardian. In a further article he will survey the present claims of Turkey—supported by the United States and Britain as the two chief Maritime Powers—to retain the guardianship; and of Russia—the great Land Power—to share it

THE question of the Straits is as old as Troy itself. Three thousand years ago Troy, situated at the southern entrance of the Hellespont, claimed the right to levy tolls on vessels entering the Straits. Was it, perhaps, the Greek Policy of the Open Door which launched the thousand ships of Agamemnon, and not the fair face of Helen?

After the fall of Troy, the little ships of Greece were free to sail up the Straits, to traffic in the Marmora and to found colonies in its hospitable bays. The bolder captains—there was one Jason among their forerunners, who appears to have been interested in wool—sailed past the Cyanean rocks at the mouth of the Bosphorus into the treacherous and vasty sea beyond.

It was about this time that a certain Byzas, the leader of a band of Greek adventurers, asked the Delphic Oracle to indicate to him a favourable site for a new city. (Byzas is described as Neptune's son—which was, per-

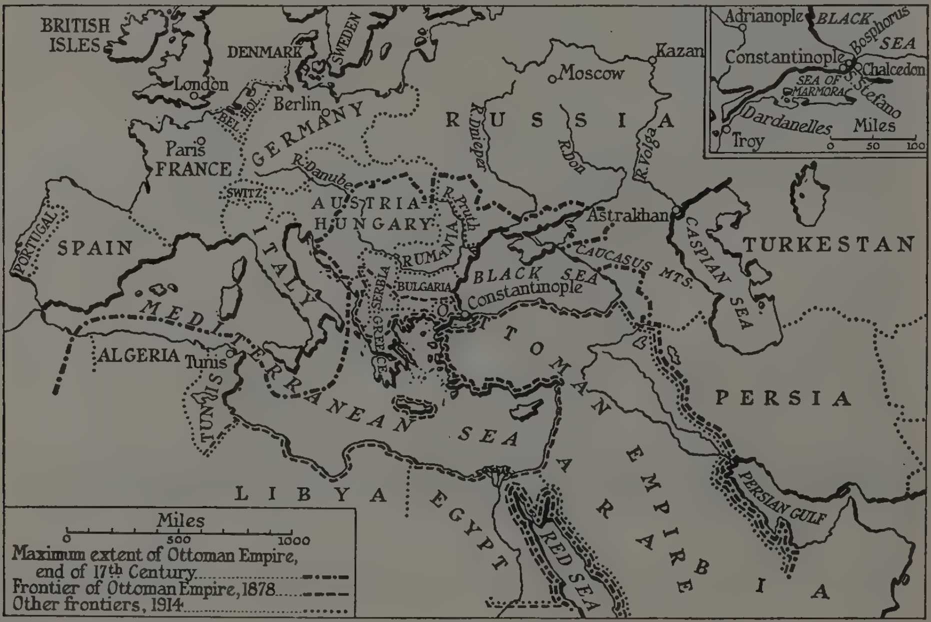


Constantinople from the east, situated on its promontory within the line of Byzantine sea and land fortifications. The map was originally drawn by an Italian about 1570 and transcribed later into a work published by Flemish refugees at Cologne. Below are portraits of the first eleven Sultans haps, the picturesque Greek way of calling him a sea-dog.) The Oracle, hedging as usual, told him to seek a site "over against the city of the blind". So Byzas—easily satisfied, as we would think—set sail with his companions to find the place. He visited many towns on his travels; yet he failed to discover among their inhabitants any evidences of abnormal cecity; until the Fates brought him to the town of Chalcedon, situated at the point where the Bosphorus empties into the Marmora. (Two thousand five hundred years later, at this very place, Florence Nightingale tended our sick and wounded soldiers evacuated from the Crimea.) Looking from Chalcedon across the water, Byzas perceived a noble promontory of high ground. On one side he saw the dancing waves of the Marmora; on the other, a sheltered bay winding backwards into the green hills. Byzas was pleased. Pointing across the waters at the promontory, he (I suggest) exclaimed: "The search is over. The men of Chalcedon are, beyond peradventure, blind; for they have missed the finest site in all the world. There we shall build Byzantium." That was in 657 B.C.

If the gallant Byzas did really say something of the kind, he was very right. The site was indeed incomparable. It lay at a strategic point on the famous waterway where Europe and Asia meet, which links the Black Sea with the Mediterranean. The approaches to it were through two narrow straits which, in succeeding ages, were to prove admirable outer defences. On the land side, the promontory could be easily defended, because the distance between the sea and the inner harbour was less than three miles. The harbour itself, broad and deep, tideless and well protected, cried out for shipping. Abundant sunshine and moderate rains ministered to the fertile soil. The sea furnished such rich harvests that a tunny fish became the symbol of the city.

FREE CITY AND ROMAN COLONY

For some six hundred years Byzantium enjoyed the privileges and endured the adversities of a semi-independent city. During their Grecian campaigns the Persians ravaged it. Athenians and Spartans fought over it. Xenophon and his Ten Thousand made themselves masters of it. Alexander annexed it. After the decay of Macedonian power, it regained its independence; and in the century before the Christian era it enjoyed the dangerous status of an ally of Rome. But the alliance waned into dependence, and Byzantium became a Roman colony. In the Roman civil wars which followed, it was



A. J. Thornton

In 1474 or 1475, Sultan Mohammed II, the Conqueror, sent a friendly embassy to Venice, inviting the Doge to visit him at Constantinople, and at the same time requesting the despatch of an excellent painter to work at his court. Gentile Bellini, with two assistants, was selected for the mission. The Sultan was pleased with the work of Bellini, who returned after about a year with a knighthood, some fine clothes, a gold chain and a pension. One of the surviving fruits of his labours at Constantinople is this portrait of the Sultan, now in the National Gallery, London

National Gallery

destroyed and its famous wall demolished. For the first time the marauding Goths from the Black Sea rounded, unassailed, the promontory of Byzas and swept through the Hellespont into the Mediterranean, to pillage and destroy.

The control of the Straits was not a strategic problem for the Roman Emperors, who commanded the Mediterranean until the invading Vandals founded a corsair empire in North Africa, after capturing Carthage in A.D. 439. Rome, therefore, relying for her military communications upon her splendid roads, regarded Byzantium merely as a strategic fortress on the main road into Asia. It was not until the city became the capital of the Eastern Empire and a great emporium that Byzantine sea power came into its own. Having destroyed the Vandal corsairs, the Imperial fleet, operating from a secure base between the two straits, generally possessed the command of the Mediterranean and the Black Sea; and assisted, time and again, in repelling attacks on the capital.

THE COMING OF THE TURKS

Early in the 7th century the Turks, a nomadic people of Mongolian ancestry, were moving slowly westward across the Transcaspian steppe towards the Caspian Sea. Many of them lagged behind on their long trek and settled in the more kindly valleys of that inhospitable region, which became known, in time, as Turkestan. During the period of the Arab conquests, these Turkish peoples were subjugated and converted to Islam. Three hundred years later they overthrew their conquerors, and under the leadership of the important Seljuk clan, they invaded the Eastern Roman Empire. Out of its territories in Asia Minor they carved the Sultanate of Rum—an indication of the magic of the Roman name.

By courtesy of the Victoria & Albert Museum

Suleiman the Magnificent (1494–1566) riding across the Hippodrome at Constantinople. In the background the artist, a Flemish visitor, has inserted sad reminders of former glories: Greek churches, classic porticoes and the obelisk round which revolved the chariot races of the Blues and Greens

Among the Turkish tribes which accompanied the Seljuks was one of lesser importance which was destined, nevertheless, to achieve perdurable fame. By the middle of the 14th century this tribe—known after their first Sultan as Ottoman Turks—had succeeded, by superior arms and statecraft, in supplanting the Seljuks as the dominant Turkish power in the west. This done, they entered upon a rapid and astonishing career of conquest. They crossed the Hellespont and advanced to the Danube, capturing the Christian strongholds one by one; until at last, out of the vast Empire of the East, only the city of Constantine remained—a lonely outpost of Greek manners, surveying with anguish the plunder of its fairest provinces.

In 1451 Sultan Mohammed II, young, ambitious and accomplished, ascended the Ottoman throne. He had resolved to capture Constantinople; and he began at once to prepare for the attack, on a scale commensurate with the magnitude and hazard of the enterprise. His grandfather, Bayazid the Thunderer, had built a castle on the Asiatic shore of the Bosphorus, a bare eight miles from the ramparts of the city. Mohammed, with prodigious speed, built a more formidable fortress opposite the first, on the European shore. The famous strait was closed. The grain ships from the Danube, the Dnieper and the Don could no longer pass through to feed the city.

On May 29, 1453, after a siege of less than two months in which Mohammed employed the most advanced military engines of the time—including a cannon of unprecedented girth—the city was taken by assault. Thus the Ottoman Sultans became masters of Constantinople and the Straits. (Six years from now, their successors propose to hold an International Exhibition in Istanbul to celebrate the 500th anniversary of that momentous date.)

The possession of Constantinople and the Straits—an incomparable base of operations—was an undoubted factor in enabling the Turks to become the most renowned and the most dreaded exponents of the military art of their time. Indeed, the Ottoman Empire became at the end of the 17th century perhaps the most powerful state in the world. Its territories extended from the Persian Gulf to Algeria, from Egypt to the Don. The

Sultan's fleets were the terror of the Mediterranean; and the Black Sea became a Turkish lake, from which all foreign shipping was rigorously excluded.

THE ARRIVAL OF THE RUSSIANS

Some thirty years after the fall of Constantinople, the warring principalities of Russia were finally united under Ivan III, Duke of Moscow. Thus Turkey has been in possession of Constantinople and the Straits for a longer period than Russia herself has existed as a unitary state.

No sooner was Russia's unity achieved than she began a patient, indomitable struggle to reach the open sea. This still remains, after five centuries, her constant aim. She soon annexed, by skilful diplomacy, the independent Turkish khanates of Kazan and Astrakhan, which lay between her and the Caspian. But the Khans of the Crimea had placed themselves under the protection of the Ottoman Sultan; and they were able, with his assistance, to impede her descent to the Black Sea.

THE RUSSO-TURKISH CONFLICT

Thus began the inevitable conflict between Russia—the great land-locked Power, becoming slowly conscious of her strength, and struggling to reach the open sea—and the Ottoman Empire, occupying a position of great natural advantage across the line of Russia's sea communications with the outside world.

The struggle has lasted upwards of three hundred years. In the early stages Turkey held her own. Thus in 1699, when Peter the Great sent an embassy to Constantinople to demand freedom of navigation for Russian vessels on the Black Sea, the Sultan was in a position, haughtily, to refuse. But soon afterwards the Ottoman power had passed its zenith and was no longer able to withstand the might of Russia.

During the next hundred and fifty years, the Tsars, in successive campaigns, extended their dominion over the northern shores of the Black Sea and southward to the Pruth; and firmly established their command over the sea itself.

Nevertheless, and in spite of the growing weakness of the Ottoman Sultanate, the great prize of Constantinople and the Straits eluded the Russians. On two occasions it was within their grasp. In 1827–9 the Tsar's armies, in

At the eastern end of the promontory on which Constantinople stands, the Ottoman Sultans built the Seraglio, here shown in the 18th century. It was said of this vast enclosure, containing countless structures of every size, purpose and design, that no human being had ever visited the whole of it

By courtesy of the British M

two hard-fought campaigns, advanced as far as Adrianople; and in 1831 the Russian Black Sea fleet actually entered the Bosphorus. But the steady pressure of Britain's ships in the Mediterranean, and the opposition of France, frustrated Russia's plans for the domination of Turkey. A compromise agreement on the Eastern Question was finally reached between the Powers in 1840; and in the following year the first of the International Straits Conventions was signed. In this the Sultan declared "that he was firmly resolved to maintain for the future the principle invariably established as the ancient rule of the Empire and by virtue of which it had at all times been prohibited for ships of war of foreign Powers to enter the Straits of the Dardanelles and the Bosphorus; and that so long as the Porte was at peace, His Highness would admit no foreign ships of war to enter the said Straits". For their part, the heads of the five Great Powers "engaged to respect this determination of the Sultan and to conform themselves to the principle above declared".

However frivolous may have been the occasion of the next Russo-Turkish conflict—the Crimean War—its cause must be sought in the determination of Britain and France to rescue Turkey and the Straits from the tentacles of Russia. Today the Crimean adventure reads more like a piece of paradoxical folly than a sternly calculated military enterprise. Yet it succeeded. The landing of a few divisions of allied troops on the Crimean peninsula, and the capture of a single town, actually induced the Tsar to reverse a historic policy and to sign away Russia's paramount position at the Porte. To us, who have witnessed the might and resilience of Russia and the stupendous battles on the Eastern front, it all seems quite incredible.

The Treaty of Paris of 1856, which terminated the Crimean War, certainly achieved—if only for a brief period—what it set out to do: namely, to thrust the Russians back once more from Turkey and the Straits. Its weakness was that it went too far. It textually confirmed the clauses of the Convention of 1841; but it went much beyond that. Russia was deprived of the right to possess a fleet or to maintain arsenals in the Black Sea. Yet Turkey could keep her ships anchored in the Marmora, and Britain hers riding the Mediterranean—both ready to exercise pressure from a distance or to attack Russia at need.

The framers of such a treaty could hardly have expected it to endure; and the outbreak of the Franco-Prussian War gave to the Tsar Alexander an opportunity of denouncing it. Another conference of the Powers was held in

The Turkish fleet at anchor at Buyukderé, on the Bosphorus, in 1853. This fleet, which included three line-of-battle ships and several large frigates, symbolized the resistance of Turkey, backed by Britain and France, to Russian pressure. The following year saw the outbreak of the Crimean War

rtesy of the "Illustrated London News"

By courtesy of the "Illustrated London News

(Above) *The maritime Allies soon established themselves at the Dardanelles. French infantry, amid cheers from British vessels, landed at Gallipoli in May 1854.* (Below) *By February 1855, Florence Nightingale was making her rounds among the casualties crowding the military hospital at Scutari*

By courtesy of the "Illustrated London New

London in 1871, where a new treaty was signed. This again confirmed the existing régime of the Straits, as specified in the Convention of London of 1841 and the Treaty of Paris of 1856; but it abrogated, by a simple statement, the article in the Paris Treaty which had denied to Russia the right to maintain a fleet and arsenals in the Black Sea.

The next on the long list of Russo-Turkish conflicts was the war of 1877–8. Once more the Tsar's armies advanced victoriously through the Balkans. But again they were halted at the very gates of Constantinople, by the arrival of the British fleet.

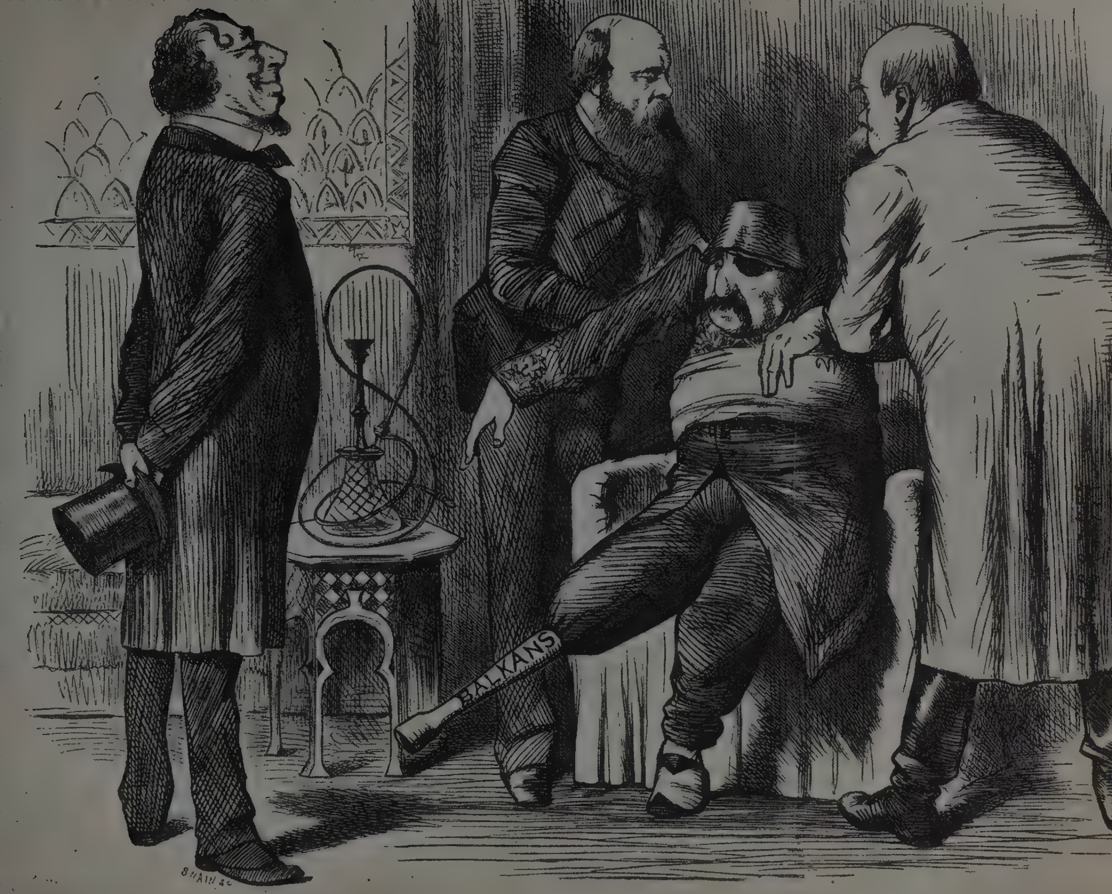
A preliminary treaty was signed between Russia and Turkey at San Stefano—a suburb of Constantinople—in the spring of 1878; but the whole Eastern Question was reviewed at a Congress of the Great Powers and Turkey held three months later in Berlin. Article 63 of the Berlin Treaty again affirmed the principle—previously defined in the international treaties of 1841, 1856 and 1871—that ships of war were not permitted to pass through the Straits in peace-time, and that the guardianship of the Straits was the sole responsibility of Turkey. The principle, reaffirmed by four successive European conferences, now possessed more authority than almost any international agreement of its kind. Once again the prize for which Russia had been striving since the days of Peter the Great had been snatched from her at the moment of victory.

In the long conflict of three centuries (which has not ended yet) the longest period of uninterrupted peace was the period between the termination of the Russo-Turkish War in 1878 and the outbreak of the first World War in 1914—thirty-six years; if, indeed, the word 'peace' can be properly applied to a period of such veiled hostility and tension.

In the last decade of the 19th century, a new political factor appeared in the East. William II, the ambitious and exuberant Emperor of a new Germany, began to take an interest in the affairs of the Ottoman Empire. Under the leadership of this dynamic personality, Germany rapidly supplanted Britain as the principal counterweight to Russia in Turkish affairs. Indeed, during the ensuing twenty-five years, until her defeat in the first World War, Germany—through the skill of

Russian successes in the war of 1877–8 led to the Treaty of San Stefano; whereupon, in April 1878, the Grand Duke Nicholas visited the Sultan at Constantinople. To avoid the excitement which Russian officers traversing the streets might cause, the Grand Duke approached the Sultan's palace by sea

By courtesy of the "Illustrated London News"



Reproduced by permission of the Proprietors of "Punc

The amputation of Turkey's European possessions after this Russian victory was mitigated at the Berlin Congress by the provision of what Mr Punch called a "patent Balkan leg". Disraeli is depicted encouraging the cripple, with support from Salisbury and Bismarck, the German "honest broker"

her ambassadors and the enterprise of her industrialists and merchants—succeeded in building up for herself a paramount position in Turkey.

The antagonism which had for so long existed between Russia and the Ottoman Empire, and the paramount position which Germany had now acquired in Constantinople, rendered almost inevitable the entry of Turkey on the side of Germany in the first World War. Nevertheless Turkey's historic association with England and France made her hesitate to take the plunge; until two German warships, which had taken refuge in the Straits, steamed into the Black Sea and (without the knowledge of the Turkish Government) attacked units of the Russian fleet and bombarded Russian harbours. Thus, once again, Turkey found herself at war with her old enemy.

The entry of Turkey into the war severed the only practicable line of communication between the Allies and Russia and aroused in her old feelings of exasperation. At her suggestion, and to relieve the pressure on her armies in the Caucasus, an Anglo-French attack on the Dardanelles was planned; but no sooner was the operation launched than the old jealousies and suspicions of Britain were aroused. Russia, therefore, immediately demanded for herself—as her part of the prizes of victory—Constantinople, the two Straits and the Sea of Marmora. Although agreement meant for Britain the reversal of a hundred-year-old policy, there was no alternative. France, too, acquiesced. The Allies were never called upon, however, to fulfil their pledge to the Tsar's Government; for it was overthrown in 1917.

The Practical Pagan

by JOSEPH DENFIELD, B.Sc., M.B., B.S., M.R.C.P.

THE social organization and economic life of a people depend primarily upon the climatic and physical conditions under which they live, and among peoples who have not advanced far in civilization, these determining influences are most marked. In regions where food is plentiful, and man has little to fear from his neighbour, an independent type of existence is possible, but where the surroundings are less hospitable and neighbours less friendly, individualism would spell ruin, and a communal mode of life is essential.

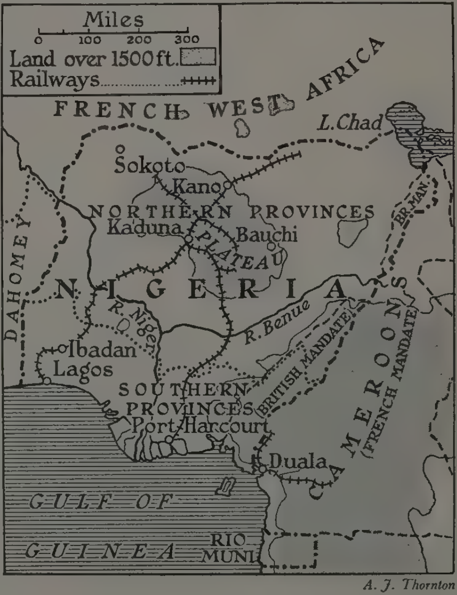
Primitive 'communism' of this kind has been preserved among the pagan tribes of the Nigerian plateau, who were compelled to seek refuge among its rugged hills if they wished to maintain their tribal independence in the face of stronger invaders. Living in seclusion, and avoiding contact with other peoples, their mode of life has been little affected by outside influences, and although Western civilization has brought revolutionary changes in the social and economic life of Nigeria generally, these plateau pagans tend to view the transformation with suspicion.

Their isolation has not only resulted in the persistence of their customs, but has brought about the need for self-sufficiency. In this respect they have adapted themselves to a remarkable degree. Superficially, their primitive methods may appear crude and uneconomical, but when one considers the limited material available, and their ability to draw from natural sources only, one is amazed at their resourcefulness and power of compromise. Every particle of the surrounding area, the grains of earth, the roots, leaves, fruit, bark and branches of trees, and every natural object has been thoroughly investigated in order to determine whether it can serve any practical purpose in their material welfare. The knowledge resulting from this accumulated experience has been handed down from generation to generation.

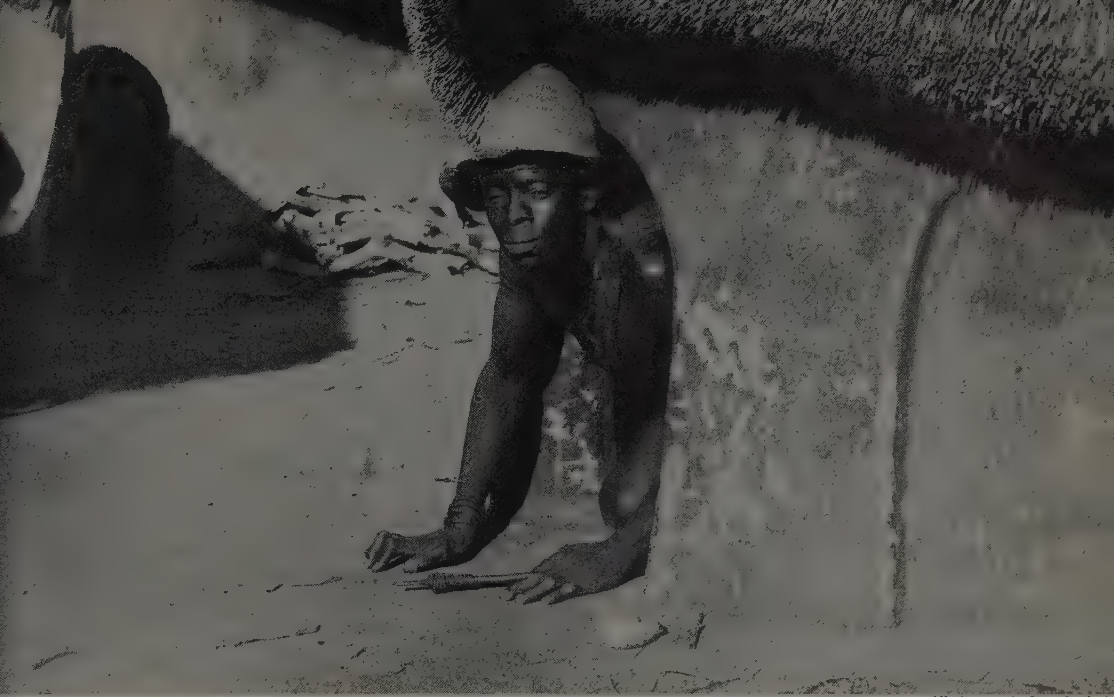
How difficult it would be for us to introduce among them our labour-saving devices, when these do not take sufficient account of local conditions, is illustrated by the following story. A wheelbarrow offered to a pagan to relieve the heavy burden carried on his head was accepted with many thanks; but the donor was amazed when he next saw the pagan, negotiating a rocky path, with his goods inside the wheelbarrow and the whole balancing precariously on his head!

The need for protection against invaders has undoubtedly been the primary consideration in the choosing of a site for a pagan village, and positions which are easily defended are those selected. Most of them I found situated on the tops of hills, on the rock face of the escarpment or on the flat upper surface of gigantic jutting rocks, whose sides were so precipitous that there existed but one possible approach. Where villages were situated in forest clearings, and thus more vulnerable to attack, defensive circular walls of mud or stone had been built.

The requirements of security and self-sufficiency are reflected in many details of the construction of the pagan villages, as shown in photographs accompanying the present article, which also illustrate the multiplicity of huts within each village and the various purposes served by them. To safeguard against fire, the whole of the hut, including the roof, is built of mud, and although the circular type of dwelling with thatched conical roof is the prevailing one,



A. J. Thornton



All photographs from the Autho

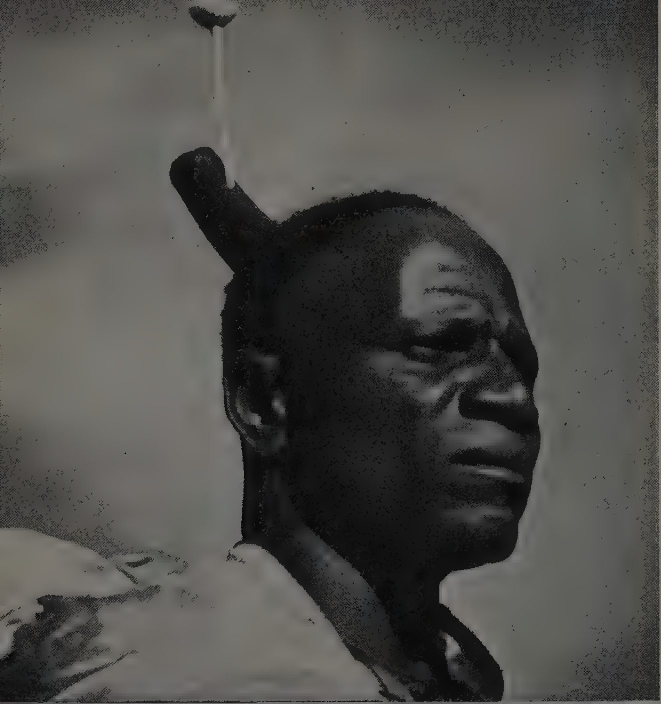
A queer sort of doorway, you think? But a practical one among the prevailing high winds of the Irigwe country, where the ingenious pagans streamline the shape of their oval, low-walled huts and slope off the thatched roofs to reduce wind-resistance and make the huts more weather-worthy

interesting variations of design and structure are seen among the different tribes. Some have two stories, the upper one being used as a store and generally approached from the outside. Others are connected by their mud walls and open into each other.

The pagans are primarily agriculturalists, and where the fear of invasion has confined their agricultural activities to the vicinity of their hills, terrace cultivation has been introduced. Besides the main cereals and root crops, gourds, tobacco, groundnuts and flavouring agents are grown. Contrary to general belief, the pagan is fully alive to the value of manures, and the presence of the nomadic herdsmen, the Fulani, with their cattle is welcomed. Surprising as it may seem, rules exist for the rotation of crops. This is an example of knowledge that has accumulated empirically by trial and error through many generations, and the rotations best suited for their particular soil are now incorporated in the customs of each tribe.

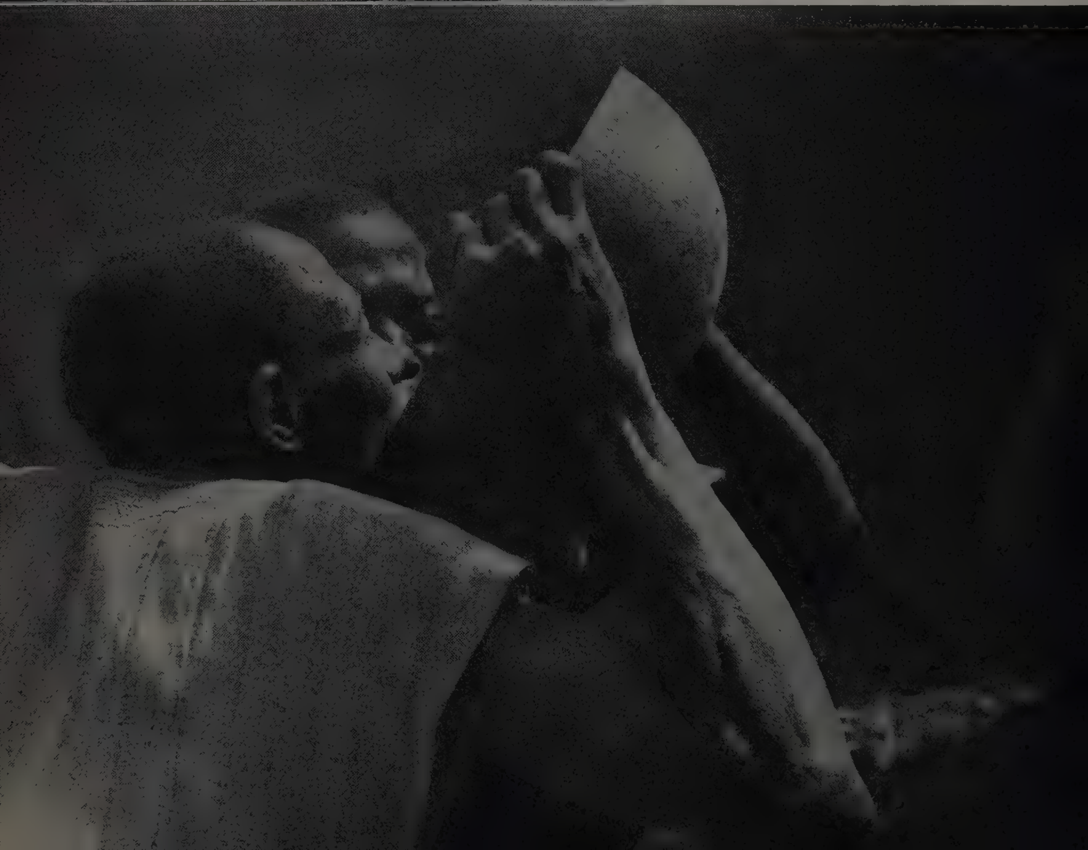
The harvested crop has to be protected and stored, and so granaries are built. These are so varied in design, that one could identify a tribe by the shape and style of granary used. Granaries are built of mud on a foundation of stones to prevent damp. They are often much larger than the living-huts, and usually approached from a narrow hole in the top. The largest granaries I saw belonged to the Siri and Miya tribes, and were about twenty feet high. They were cylindrical in shape, but in order to render the removal of grain easier, they were built much wider above than below. Grain is also stored in hollow cylinders forming the central support of the dwelling-house. The corn is threshed on flat rocks surrounded by a mud wall to prevent the grain being blown away by the wind.

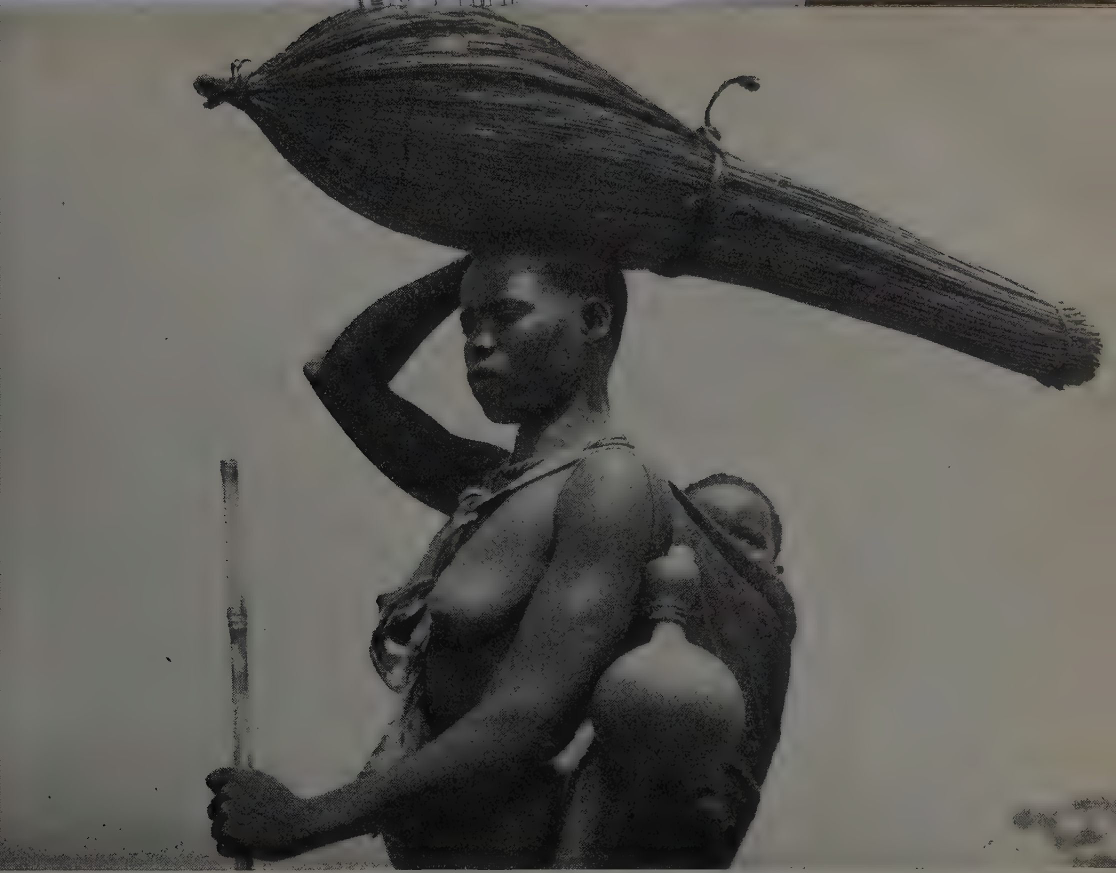
Most of the pagan tribes scarify their faces and sometimes their bodies. Many reasons have been assigned for this custom, but whatever may be the case at the present day, its origin was not merely to beautify the body. It had many practical applications. As a form of tribal recognition it prevented the loss of identity among its members who were sold into, or escaped from, slavery. It also strengthened the tribal bondage. Certain marks and designs indicated a tribal status. Thus the completion of scarification among the women of a tribe may be postponed until after their wedding ceremony. Again, a representation of the clan's totem may be

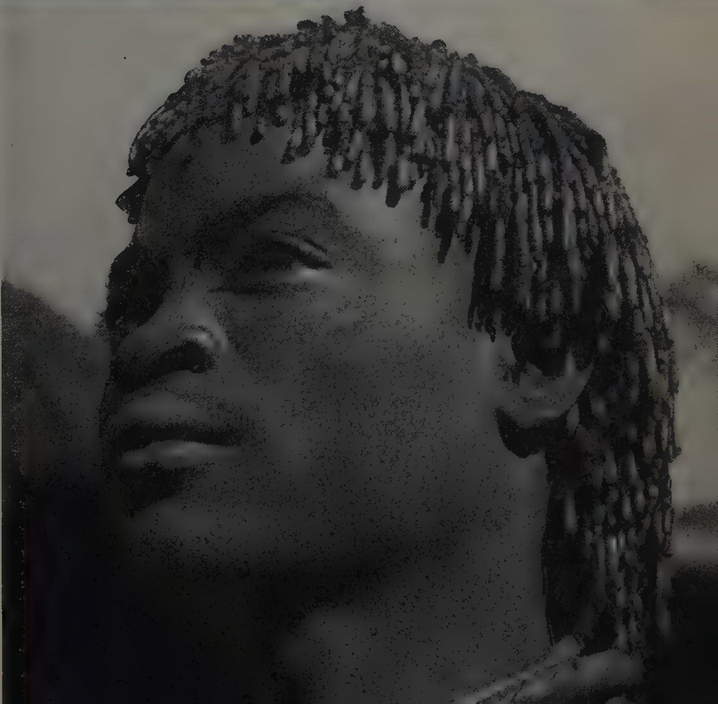


(Left) *The chief of the Chip tribe, who is still regarded as a semi-divine being though he no longer has to pay the extreme penalty of death if his divinity fails to bring practical dividends by ensuring rain, fertile crops and tribal health. His tuft of hair contains representations of seeds which act as fertility-charms and is surmounted by an ivory pin and disc*

(Below) *In sign of friendship, two men drink together from the same calabash. The gourd furnishes nearly all the domestic utensils of the Nigerian plateau pagans: cut horizontally, gourds are used as bowls and saucers and for carrying loads; those with small constricted necks are used for bottles; others, with long necks split lengthwise, for spoons, ladles and dippers*







(Above) *The pagans plait various grasses and leaves. Among their few articles of clothing is a long hooded cloak made of plaited palm leaves, which fits over the head and back and is worn during rainy weather. This is the object being carried, rolled up, by a Hill Angas woman on her head; behind is her baby and over her shoulder hangs a narrow-necked bottle gourd*

(Right) *Owing to the impetuous and warlike nature of the Kaleri tribe, their country has, until recently, been closed to Europeans. They are all completely naked and of savage appearance, with amazing physique and supple, shining skins, attributed to the consumption of large amounts of palm oil. This Kaleri warrior's hair is worn in coils impregnated with red clay* scarified on the body or special distinguishing marks may be assigned to a chief; but whatever the significance of this practice, it was to the tribal advantage. Although in many tribes the conditions that led to the introduction of a given custom may no longer operate, the custom has often persisted.

Mention has been made of the gourd or calabash, which the pagan farmer cultivates chiefly for the dry shell of the fruit. No one article is put to more uses than the gourd, and although it occurs in different forms naturally, its shape is artificially altered during growth to suit its final purpose. It is the domestic utensil *par excellence*. Cylindrical varieties are used as quivers, or if long and tapering for horn-blowing. I have seen them used as resonators in different musical instruments, and on more than one occasion I have seen the natives cross a stream by lying across a large gourd and using their hands as paddles.

Many of their languages are tonal, and are so sing-song that they are reproduced by talking drums, whose pitch can be altered at will while they are being played. In this manner messages can be transmitted over varying distances. It is wrong to think that there is a universal "drum language". Special drummers are trained for this purpose, and the notes are meaningless to anyone not familiar with the language. Another practical way of sending messages was demonstrated to me by the tribes living in the hills. All the villages of these tribes are separated from each other by valleys lined by steeply sloping hills. Due to the resonance of these narrow valleys, messages can be shouted from one hill-top to another, and repeated until the desired village is reached. Then, after a minute or two, a distant echo can be heard becoming louder and louder, like a train entering a London tube station, until it becomes the audible reply from the village called. Thus a message can travel many miles in a few minutes.

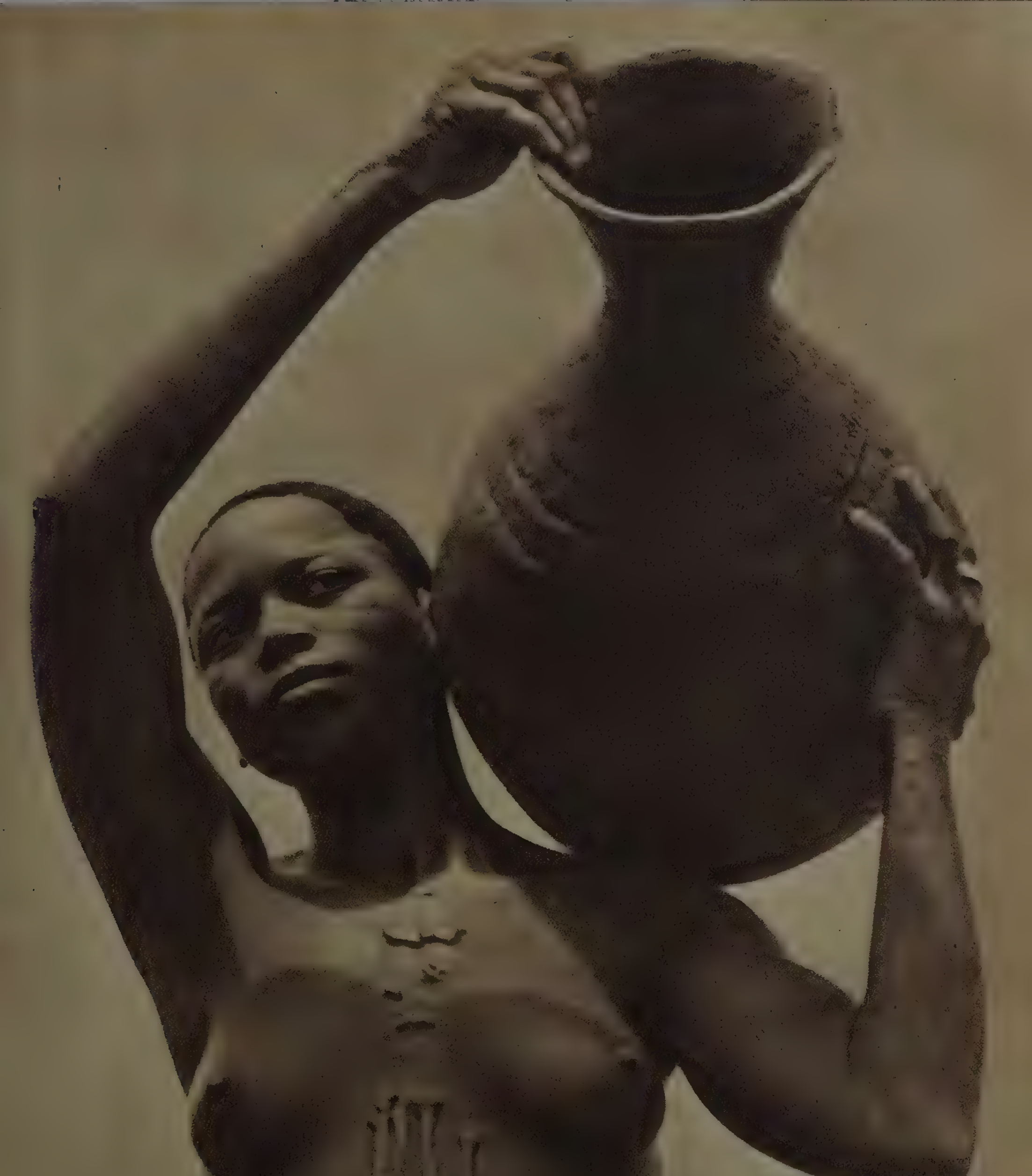
This method of telegraphy proved itself particularly useful when a missionary friend and I were trekking in the Tal district. We put up at the mud rest-house which was situated half way up a hill. These rest-houses are used by government officials and travelling Europeans, and are found scattered over the country, with a native keeper, the "Sarakin Baraki", in charge. He is responsible for the condition of the house and the welfare of its users. Before sunset we discovered there was no water in our hut and no keeper in sight; so I went to the top of the hill on which the rest-house was situated and called, as I had been shown, "Sarakin Baraki". This was instantly taken up and repeated by a neighbouring village which received my message. The keeper, who it appears was visiting at the time a Hausa settlement some distance away, was able to hurry back and minister to our wants. That evening we had our usual brew of tea.

Although the main occupation of the pagan is farming, subsidiary industries exist. Of these the most important are smelting and smithing. Sufficient surface iron ore, in an easily workable form, is found in many places, and is smelted with charcoal and bellows. The latter are constructed from goat-skins. The blacksmith, in spite of his simple tools, is able to fashion all the farming implements needed. In addition such articles as knives, swords, spear and arrow heads, bracelets, rings and other ornaments are made.

Other indigenous industries include pottery, basketry, mat-making, bee-keeping, beer-making, dyeing and tanning. Some of the baskets are remarkable for their size, workmanship and design. During the dry season of the year, an exceedingly fierce dust-laden wind, the Harmattan, blows across the plateau and prevents any straw industry from being carried out in the open. To overcome this difficulty, the people of the Kadara tribe build themselves underground rooms. Sufficient light enters from above, and they are able to carry on with their labours undisturbed. Various grasses, fronds and palm leaves are used for plaiting.

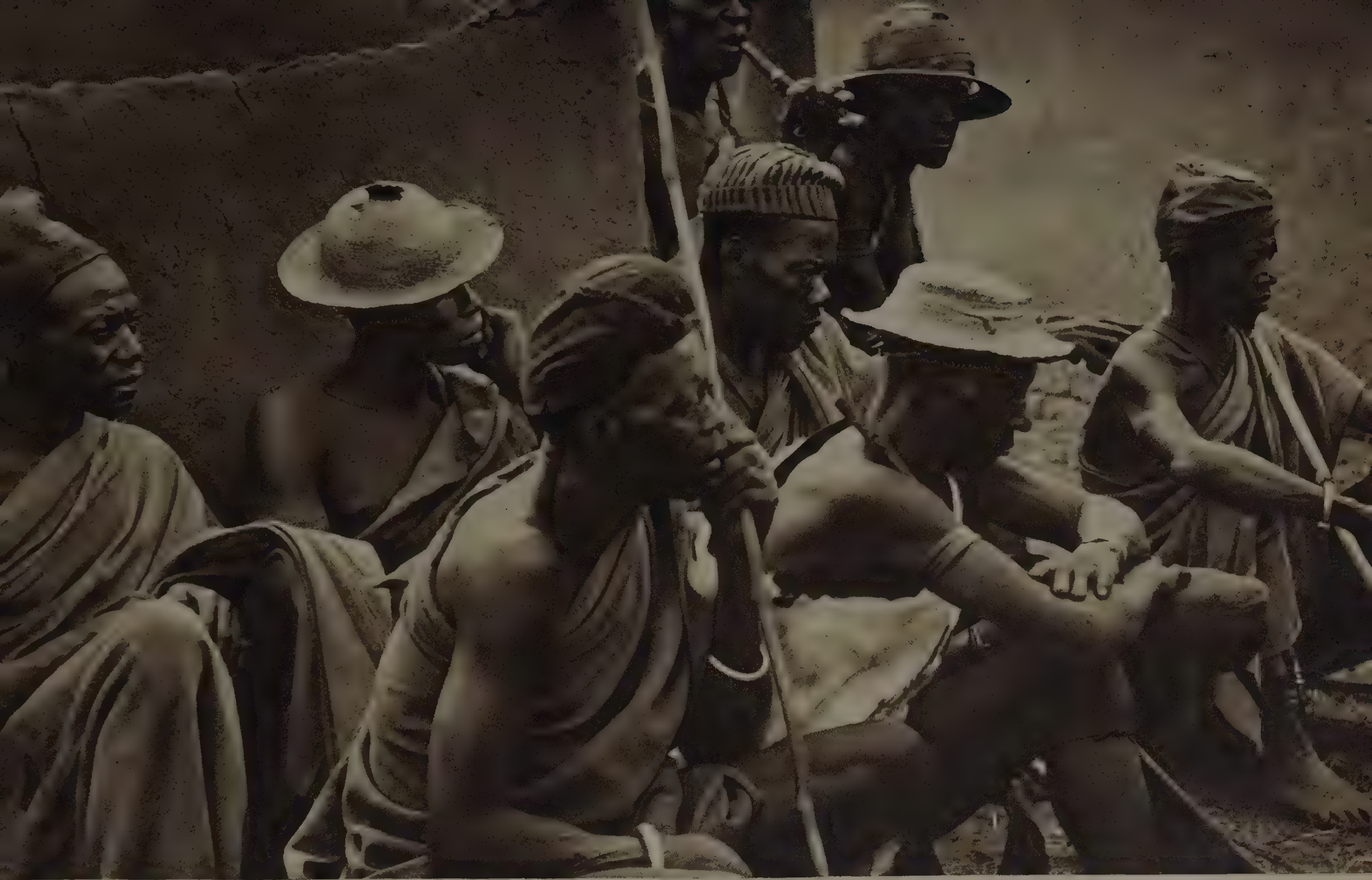
All the pagan tribes on the plateau indulge in trapping and hunting. They have a profound knowledge of the habits of animals and are inveterate stalkers. Their traps are cleverly contrived and skilfully camouflaged, incorporating many ingenious mechanical devices. For hunting, the bow and arrow is mainly used, and occasionally the spear, tipped with poison. Although it is not generally recognized, these arrow poisons are only lethal when introduced into the body directly, that is, through the skin, and are relatively innocuous when taken by mouth, the toxic properties being destroyed by the juices of the digestive tract, so that any animal killed in this manner can be eaten without fear. The pagan people's knowledge of the medicinal and toxic properties of drugs when given by mouth is not surprising, for in attempting to discover plants which were edible, many were observed to produce unusual effects. But one wonders how they knew that certain substances could only exert a pharmacological action when injected into an organism, and one can only speculate at the numberless experiments that must have taken place before such substances were evolved.

So far I have dealt with the various aspects

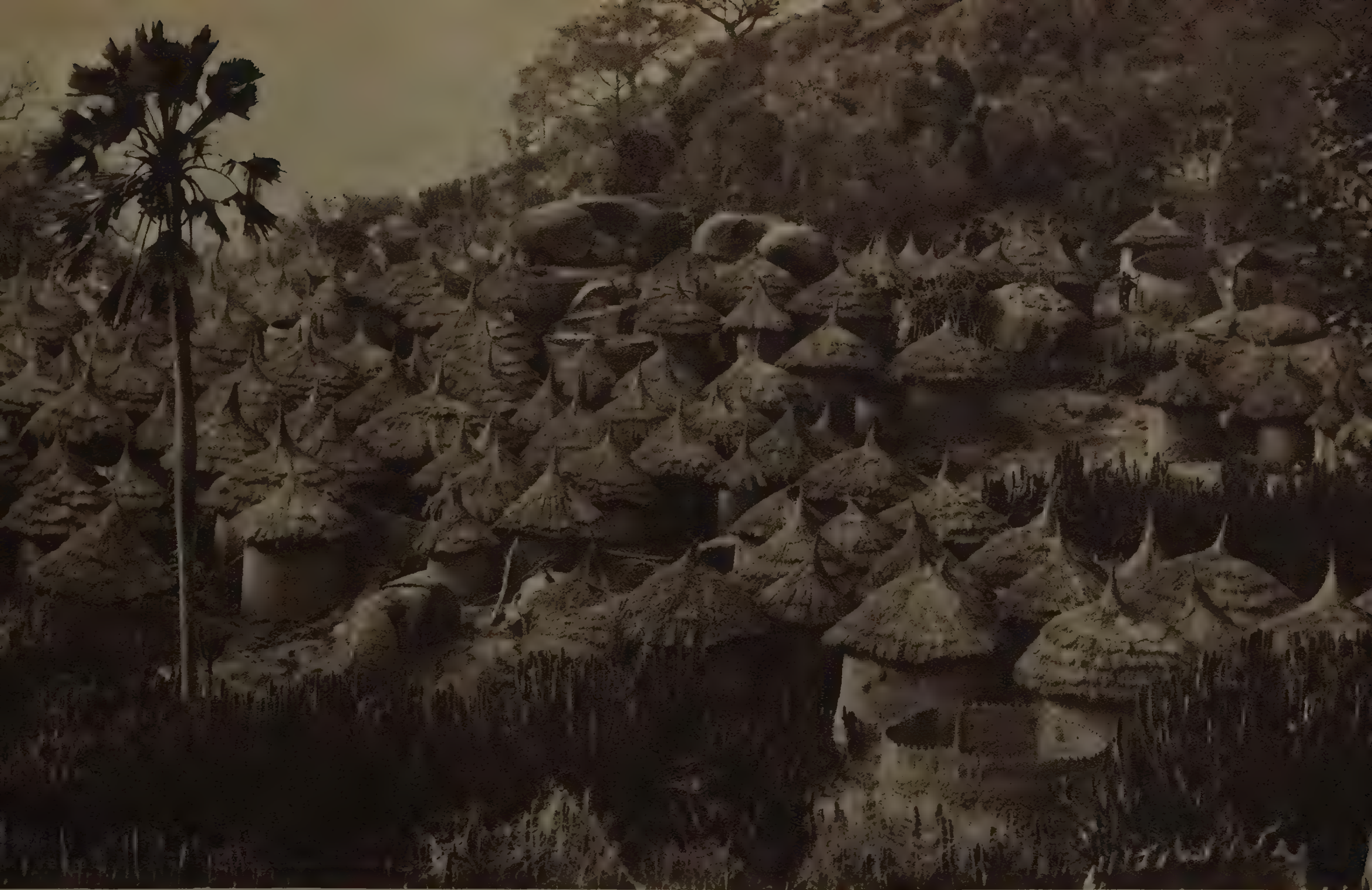


A pagan beauty of the Chip tribe in Nigeria. What looks at first glance like a necklace is really the result of scarification, the raised scars being produced by inserting needles under the skin. The purpose is not only to beautify the body but also, originally, to enable a person's tribe and status in it to be recognized

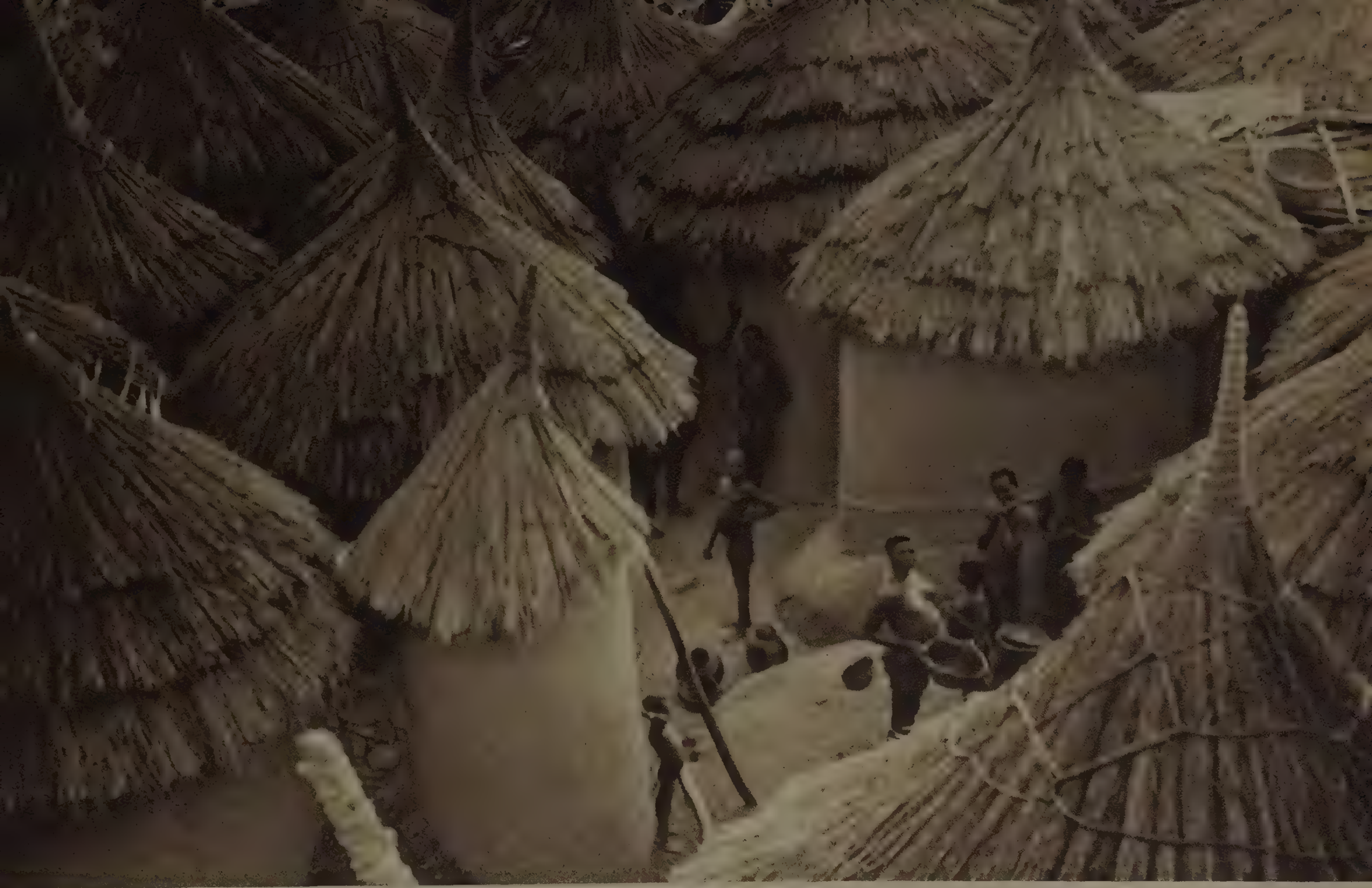
The rugged hills of the Nigerian plateau have proved a sanctuary for many pagan tribes, driven from the fertile, low-lying regions by more



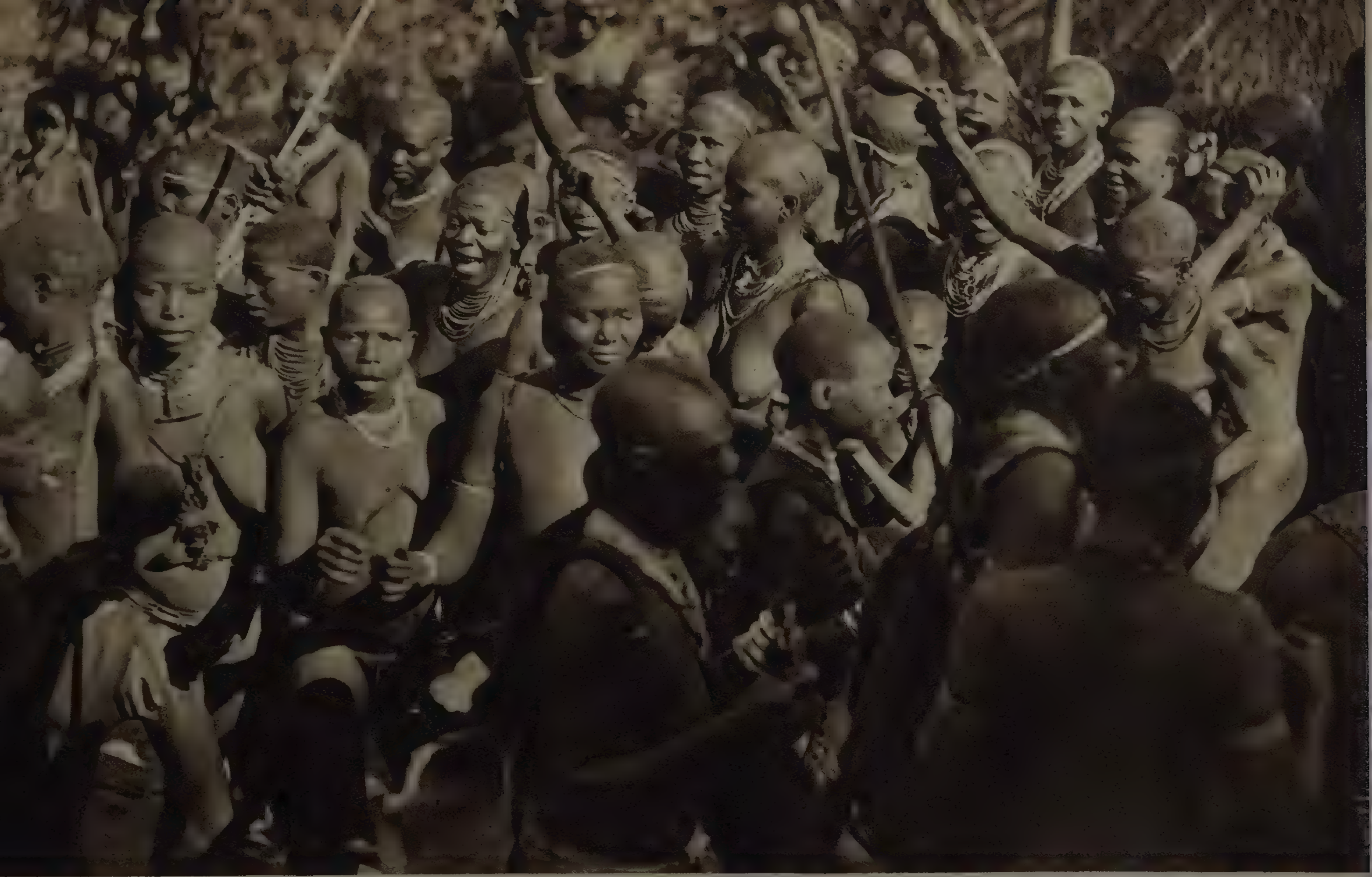
A council of village elders among the Birom, as in other tribes, represents the family groups which are jointly responsible for the good behaviour of their members and for the ordering of social and economic affairs. The straw hats have a subsidiary use—the straining of beer!



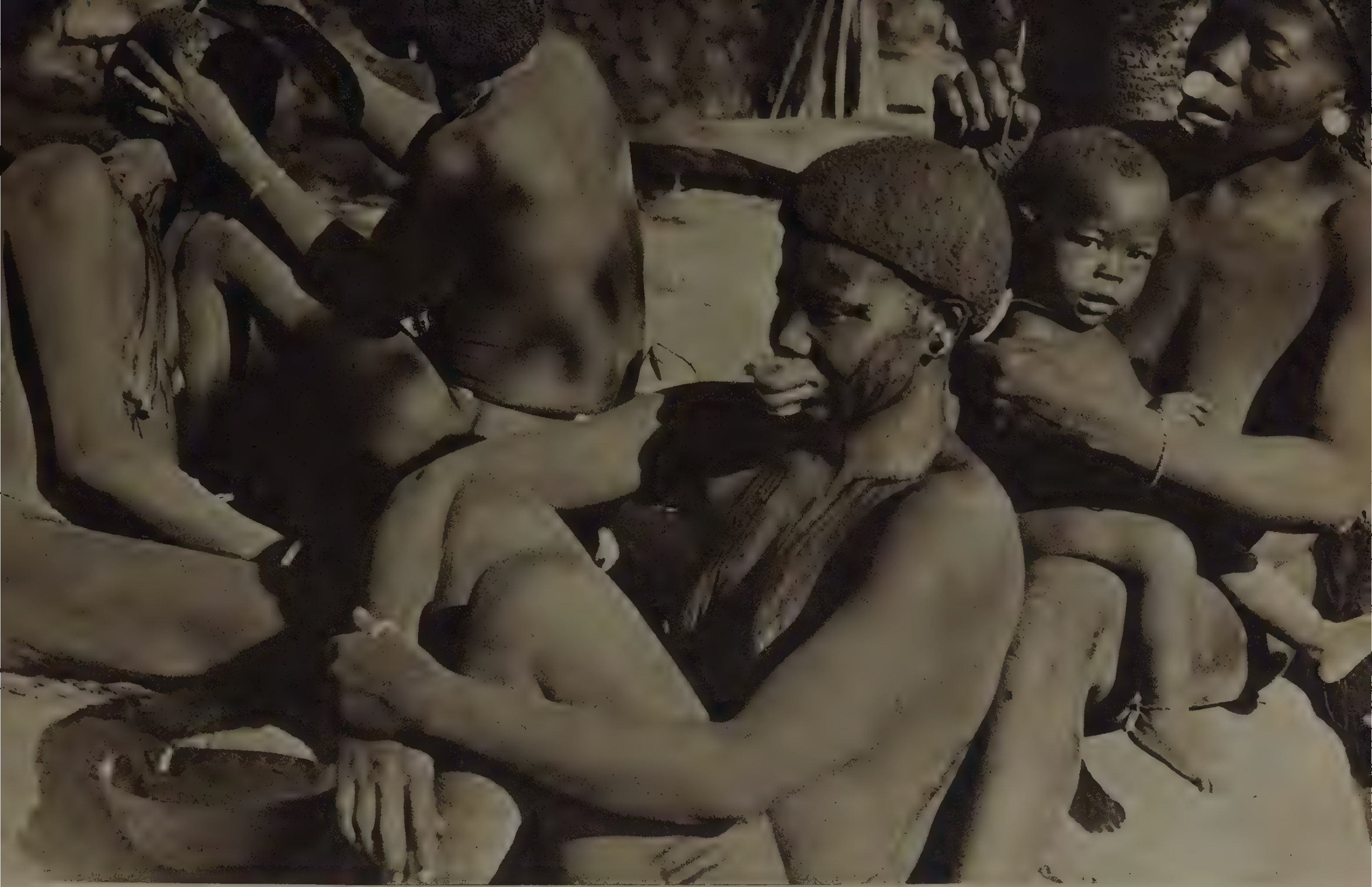
The mushroom-like huts of the Rukuba resemble those of most other pagan tribes in being built as close together as possible for protection against unfriendly neighbours. The security of the villages is further reinforced by dense hedges of cactus and one entrance suffices for



—each compound, the huts round the ***outside*** *being all connected to one another. Very few of the huts are used for sleeping purposes, the*



The Kaleri women, young and old, all dance together to the accompaniment of singing, gourd rattles and drums. Normally they wear nothing; for the dance they are ' dressed up ' with necklaces and small aprons. Men may look on, though women may not watch the men's tribal war-dance



Women of the Zaranda tribe fashioning their helmet-shaped hair style with the help of soot. The unsightly discs inserted in their lips are

The chief of the Buli, a pagan tribe of Bauchi Province, Nigeria of the economic life and material culture of these peoples, their self-sufficiency, and the practical methods employed in overcoming some of their problems. Now let us examine their social organization and see how this is constructed to suit their economic mode of life. The pagan is a realist. He is absorbed in material interests and in life's responsibilities. He realizes that, living in an environment where concerted effort is essential for existence, he, as an individual, is of no account, except as a member of the social group to which he belongs. This social group is the unit of his social organization, and consists of the head of the family, his children and grandchildren, his brothers and cousins, and their children and grandchildren. This constitutes the extended family, and everything is done to increase the solidarity of its members. Power and affluence are reckoned not by personal possessions, but by the strength in numbers of one's family. The acquisition of many children represents not only an economic asset, but a great advantage socially and politically. This is reflected in many of their customs. The family of a daughter who marries must be compensated for the loss of her services, and the bride-price paid is therefore considered an indemnification for loss. Further recompense may have to be made for the birth of children, and if this is not paid the children are returned to the bride's parents. In the same way the purchase price may have to be returned if no children are forthcoming or if the wife dies childless.

A young man is assisted in the purchase of a wife by members of the extended family to which he belongs, and where his prospective father-in-law demands additional agricultural service as part payment, he can enlist the aid of his friends in his family group, who are anxious to increase its potential strength. So great an importance is attached to children, that where a wife has eloped with a member of another clan, any resulting offspring is claimed by the robbed husband; and in communities where sexual communism exists, the legal husband and not the biological father has the right to the child.

The head of this extended family group is responsible for the behaviour of its members. He directs their activities, protects their interests, and sees that everything is done to safeguard the unity of the family. When an offence is committed against a member of his group, he sees that suitable compensation is made to that member, or rather to his family, by the offending party. Pagan law on the whole is rather restitutional than retributory. That is, the judge aims at making good any economic loss to the family group, rather than inflicting direct punishment on the offender. Thus, when a certain farmer stole some farming implements from a neighbour, although he was punished by serving a term of imprisonment in the government gaol, this did not atone for the crime, and his relatives were made to replace the stolen articles. In former days, among some tribes, a murderer was either sold into slavery and his purchase-money paid to his victim's kinsmen, or he was made to pay blood-money to them, or give cattle or a certain number of women as recompense. Problems affecting the group generally are discussed by the head and his council of elders who represent the smaller family groups.

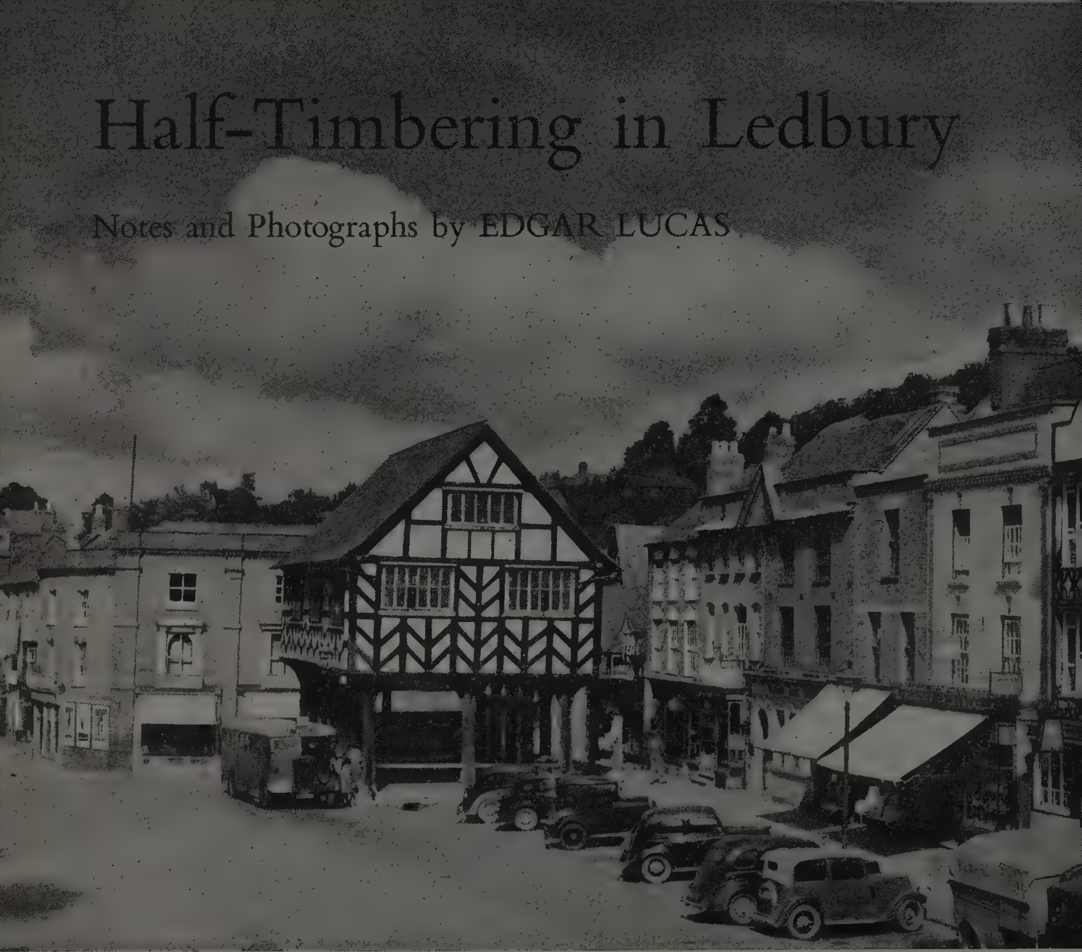
In some of the larger tribes, the head of one of these groups also takes his place as tribal chief. In some tribes he is made personally responsible for the prosperity of the community, and is then regarded as a fertility king. Such things as the securing of a good harvest, the production of rain when required, and even the health of his tribe are so intimately associated with him, that any deficiency of these is ascribed to his culpable neglect, and was punishable by death. Nowadays his life is far less precarious, but it was a means of ensuring that the person chosen for the position would have the interests of his tribe at heart!

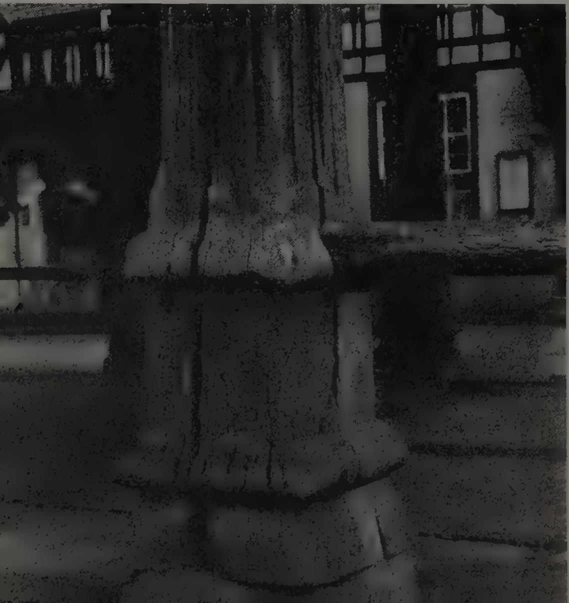
Among most pagan tribes there exists a Dodo cult. Here men dress up in fearsome fashion to represent some ancestral deity. The Dodo not only plays an important part in the initiation rites and other tribal ceremonies, but is used in maintaining the discipline of the women and children, who are taught to fear him. At night, disguising his voice, the Dodo knocks on the wall of the house of any female wrong-doer, warning her of her sins and threatening dire punishments should they not cease. In such a manner the good behaviour of the womenfolk is ensured.

At the moment these pagan tribes are mere onlookers at the approach of civilization, but sooner or later their whole social structure is bound to be influenced by changing modern conditions. The abolition of local war has enabled farms to be set up far from the village area. Isolated hamlets are appearing and the unity of the extended family is being challenged. The need for self-sufficiency will no longer exist; many of their basic industries will be deemed redundant. What will happen to the tribe when it avails itself of the amenities that civilization has to offer? There is but one answer. It will eventually die out.

Half-Timbering in Ledbury

Notes and Photographs by EDGAR LUCAS

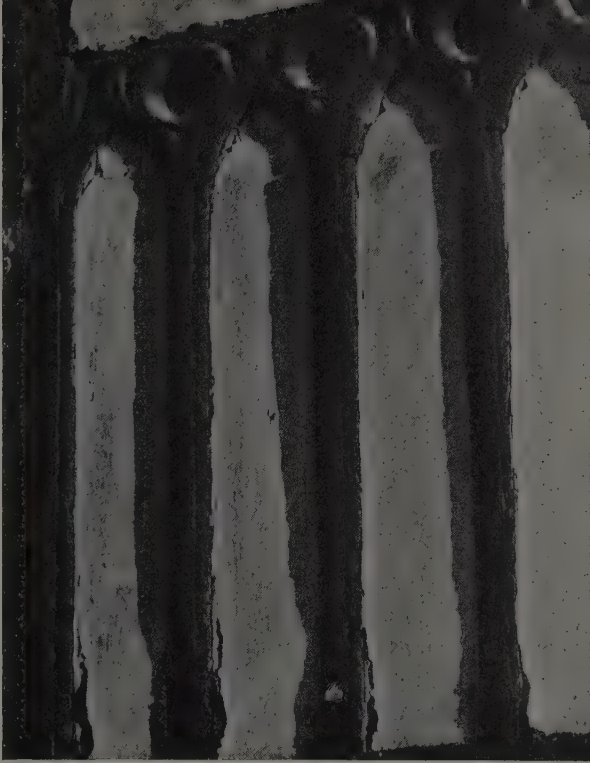




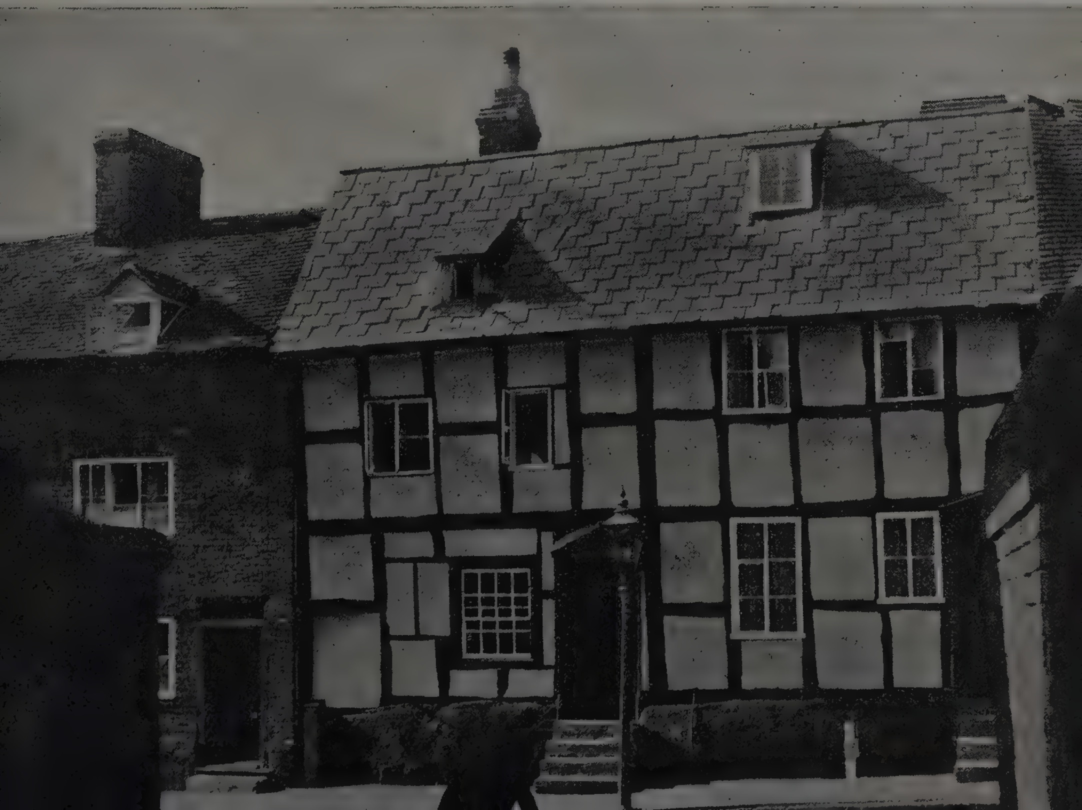
Ledbury, an old Herefordshire market-town, owes a great deal of its charm to its "black-and-white" buildings. The Market-House (above), *a particularly fine example of half-timbering, was built by the distinguished Jacobean architect, John Abel. Its timbers are mostly about twelve inches square, the joints being mortised, tenoned and pegged*

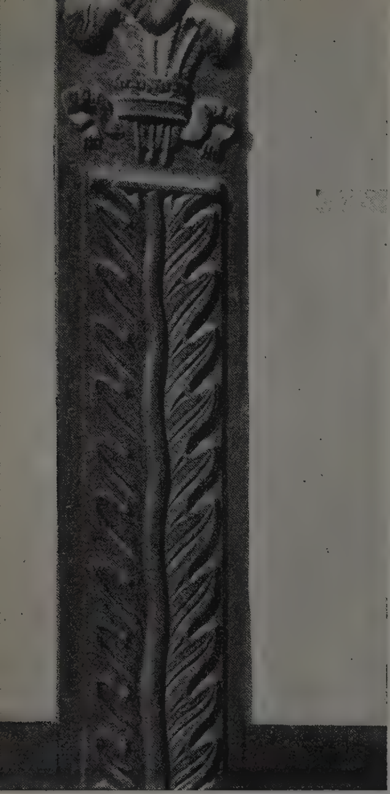
Although oak was the timber chiefly used, the sixteen pillars on which Ledbury Market-House is raised were hewn out of Spanish chestnut grown locally on Malvern Chase. Deep crevices have since opened up, owing to shrinkage, but so great a margin of safety was provided that the strength of these pillars nevertheless still remains ample

A rare type of panel frame, which is shaped like Gothic tracery. All the arches are carved on one massive timber. Half-timbering is a very old building technique, originally purely functional in form. Later, however, it tended to develop along more decorative lines, wooden members being added for which there was no real structural necessity



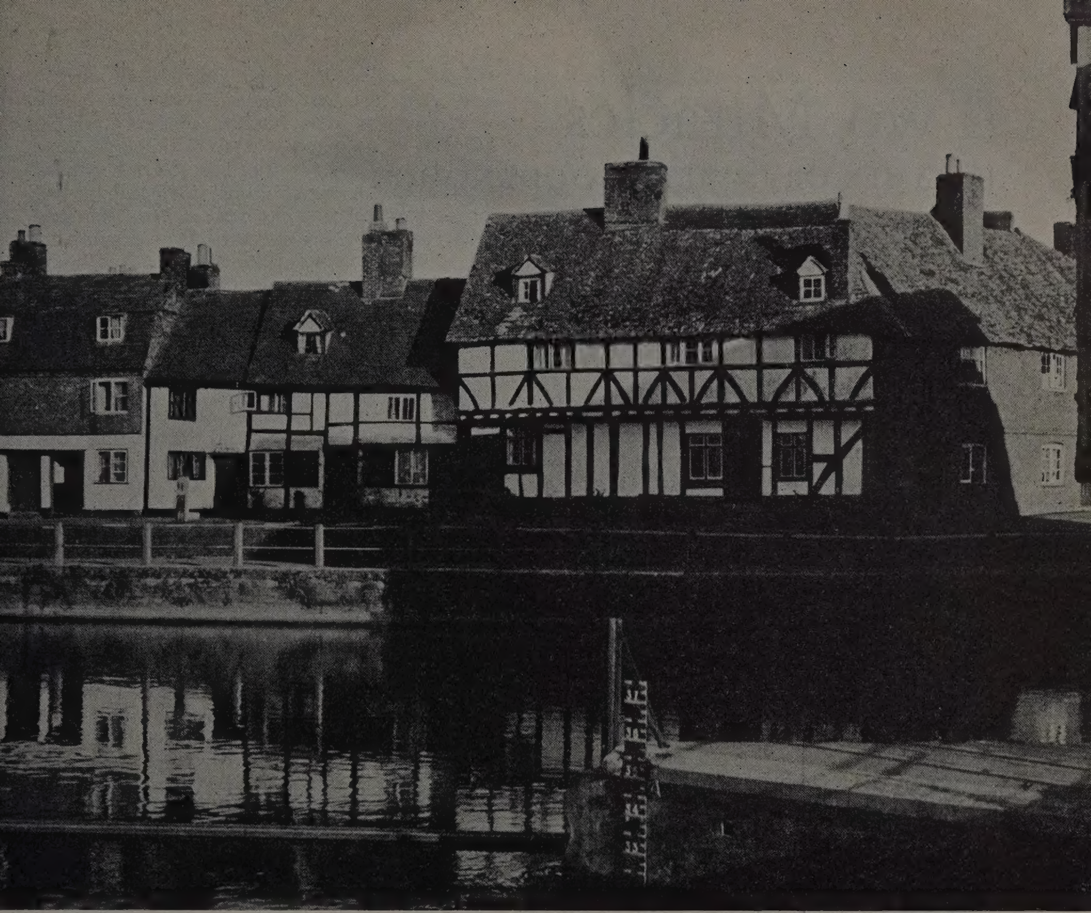
Because small cottages were lightly framed, horizontal nogging timbers were used to strengthen the construction and there was a continuous intertie at the bedroom-floor level. The panels of this cottage, probably first made of wattle and daub, are now whitewashed brickwork. A stone basement wall raises the timbers off the damp ground



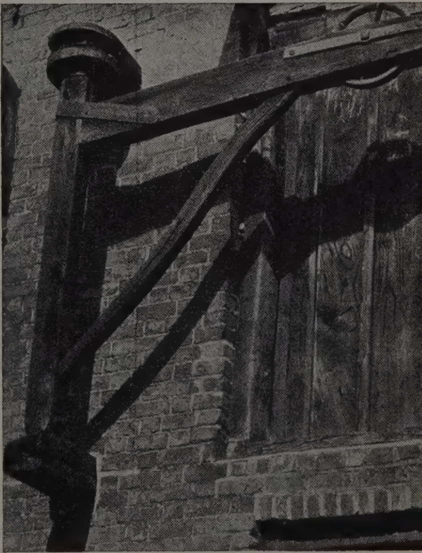


The Jacobean carpenter, although primarily a practical craftsman, could also turn his hand to effective wood-carving. A good example is provided by this post, divided into base, a shaft of leaf design and a cap of Prince of Wales's feathers. It forms part of Ledbury's "Feathers" hotel—one of many of that name built early in the 17th century

Half-timbered houses make delightful homes when restored with discretion. Joinery may have to be replaced, and also interior fittings, which must be tastefully chosen to blend with their setting. Extensions are not objectionable if sympathetically designed, and panels can easily be removed to make openings for new doors and windows



As local forests became depleted and timber had to be hauled from afar over bad roads, wider spacing of uprights was generally adopted. To strengthen the frame, therefore, diagonal bracing was used, sometimes at the corners, as seen above, and sometimes at intermediate positions, as in the case of the zigzag bracing on Ledbury Market-House



A small wall crane, pivoted between projecting beams. The versatile 17th-century carpenter was often a skilled engineer, able to construct windmills, lock-gates or cranes. It was, indeed, for his ingenuity in contriving a corn-grinding mill to feed King Charles's besieged troops in Hereford city that John Abel was appointed King's Carpenter

Two Miracles

by JAMES GRENVILLE GOODENOUGH

I

When I was about fourteen years old my Father took his family to Scotland for a summer holiday. We all had rooms in a small hotel on the shores of Saint Mary's Loch in the county of Selkirk.

That Border Country is very beautiful with its rounded hills, its broad waters, and, always, the crying of the sheep and of the curlews to keep one company. It is, too, saturated with the history of the past. You still may see many of the old Border Castles and Peel Towers standing, and you may picture the wild men of those great dales—Annan, Ettrick, Tweed and Esk—setting out on their dark and bloody forays. And it was there, I believe, that I first became infected with the most virulent disease in the world—that of the fisherman.

My Father had rented some rough shooting close to the hotel, where there were a few grouse, a few snipe and an amazing number of blackgame. He and my elder brother would go out nearly every day and would scour the hills, usually coming home with something to add to the hotel larder. Since I was unable to keep up with my elders on the hill, I was relegated to the rôle of fisherman.

The fishing in the loch itself was, at that season of the year, very poor. One might catch occasionally a pike of horrible aspect, and of worse taste, and there were also a few small perch. But there was running into the loch, at a distance of about a mile from the hotel, a small river called the Meggat. It was a typical hill stream; rocks, rapids and shallow runs, with an occasional deep pool. The water varied very beautifully in colour. Golden on the shallows, deep amber in the runs, and black with the lovely soft blackness of Guinness' stout in the pools. And it was, in those days, full of the most beautiful and the gamest small trout which have ever existed.

I would sometimes make crude attempts to fish with the fly, but for the most part used a worm, of which there seemed to be an inexhaustible supply, all waiting for a boy to dig them, in the hotel garden. In the course of a few weeks I came to know the stream well enough and I caught a reasonable number of the brilliant little trout. I enjoyed myself hugely and would profess to look down on the efforts of the shooters, holding that mine was the finer and the more delicate sport.

And then, on one never-to-be-forgotten day, there befell the miracle.

It had rained hard for the whole of the night before. Not the usual Scotch mist, but heavy drenching rain, which had ceased some time before morning light. The sky, when I went to the window, was washed to the purest, the most transparent blue. Every hill was bright and crystal clear. The whole world smelt like the Fields of Paradise. There was a great and joyous crying of birds, and everywhere the happy sound of running water.

I hurried out to dig my worms, and started away with my lunch in my pocket and with no thought that the day would be any different from the many which had gone before. When I reached the river I found it up above its usual level by a good two feet. It was so high that I decided to start further up than I usually did, and so away into the hills I plodded, so far that the stream was narrow enough to jump. And there, having baited up my Stewart tackle, I started to fish.

The trout had gone crazy. They were feasting upon the abundance of good things brought down to them by the half-flooded waters, with never a thought of their usual caution. No sooner was my worm in the stream than a trout would grab it—and such trout too: monsters of ten and even twelve inches long. Where all these great ones had come from, I had no idea. I had never dreamed that there could be so many, or such wonderful, fish in all the world.

Midday and my sandwiches went. Still the sport went on, until by about four o'clock I had some forty-five fish of a size and beauty such as no man, surely, had ever caught before.

And then came tragedy.

The last pool in the Meggat river, before it ran into the loch, was long, dark and deep. I had never caught a trout in it in all the days that I had fished the river—but surely today it might yield some great fish, the King of all the Trout? Those awful depths must surely hold something out of the ordinary. And today was the day of days.

Now Saint Mary's Loch is drained by the River Yarrow, of which greater men, and better fishermen, than I shall ever be have sung. And the Yarrow flows on to join the mighty Tweed, and so to the sea. I started to fish the last pool. In its honour I had put on a new cast and a new and particularly succulent worm. Halfway down the pool there stood a great rock in the water, and as my worm was carried behind it by the current, I saw a faint gleam of colour, a suspicion of a swirl, in the peat-stained depths. Again I swung my worm into the stream, so that it might be carried behind the rock. And this time there was no mistake.

A savage tug; the little greenheart rod bent almost double, and the cheap reel cried shrilly. And then as my heart nearly stopped beating, a great body leapt in a splendid arc from the water, and returned to it with a resounding splash.

The King of the Trout—but what was this silver shape that leaped? Where were the red spots and the golden belly? This fish was so much larger even than the monsters which I had already caught that it seemed to be a miracle indeed. Here and there in the pool he ran, and my heart ran with him. Each time that he jumped, and they were many, the end of the world was in sight. But at length he tired, after an eternity of time, and came rolling in below the bank where I stood.

Now that bank was about three feet high above the water, and the handle of my little net was no more than two feet long. So I must needs lie prone upon the bank, my rod held as best I might, while I tried to persuade him into the net. Once, twice, I so nearly had him safely in, and then—the bank on which I was lying crumbled, and I, rod, net, and all tumbled into the pool, right on top of the fish.

I never saw him again. When I dragged myself, spluttering, from four feet of water, he was gone. And I climbed back upon the bank where I had so nearly stood in triumph, and I cried.

But in spite of the disappointment, I still bless Pan, and the Gods of the Little People of the Hills, for giving that day, and his first sight of a live salmon, to a boy.

II

It all began with an argument which I had had with my friend, Reinie Botha, who claimed that no Englishman could shoot worth a damn. I differed from him, being English myself.

Reinie's farm lay on a great sweep of land, tilted to the east. It was a good farm, with three dams which held water nearly all the year round. Most of it was given over to pasture on which the Ayrshire cattle grazed peacefully, but a certain amount was cultivated and grew mealies and Kaffir corn. As is usual in the Orange Free State there were groups of gum trees planted around each of the dams, to give shade and to lessen the rate of evaporation of the precious water.

Now there came, each evening, to feed near one of the dams a flock of Paauw, or great bustards. They were mighty birds, weighing up to forty pounds and with a wing spread of nearly five feet. They were very cautious, and it was quite impossible to get within scatter-gun range of them in that open veld country. But, and here's where the argument over the shooting comes in, I had a bet with Reinie that I would get one of them; and had I not bought, second-hand in Johannesburg, a very old Portuguese service rifle, a Mauser, which was the pride and joy of my young heart?

The great, in fact the only, problem in life, was how to circumvent these bustards. For the greater part of the time they lived on a bare ridge overlooking their feeding ground, and they would post a sentry so that if anyone tried to hide near to their chosen dinner table —why, they just dined elsewhere. You may say that the effort was hardly worth while. But I was very young, very anxious to win my bet, and dead set on proving that there was at any rate one Englishman who knew one end of a rifle from the other. So, like Peter Pienaar of blessed memory, I made a plan.

I went down to the dam near which the great birds were accustomed to feed, waded in, and found that the water would completely cover me, lying down, at a spot within about a hundred yards from their usual feeding place. I cut a big bundle of reeds, wove them into a rough mat, and laid them on the bank where they would be easy to find again. That evening I went early to bed, having first told one of the Kaffir boys, who were always about before sun-up, to come and wake me the moment he himself was astir.

The urgent whispering of the boy aroused me. I took the precious rifle and hurried down to the dam, about three-quarters of a mile from the house. It was very dark, and very still. I found my bundle of reeds, took off my only clothing, a pair of trousers, and crept quietly into the water until I reached the spot which I had marked the day before. I lay down in the water, drew the reeds over my head, and prepared to wait.

First, in the east, there showed a band of palest lemon; the sky above me was a deep indigo blue and the stars were slowly fading. Then, so fast that the increase in the light could almost be felt, the lemon turned to gold, to orange, and the sun came up with a rush. The long fingers of brilliance reached far and wide across the veld like the legs of some giant daddy-long-legs. The distant hills, forty miles away across the Vaal River, looked to be within hand-reach in the diamond-clear air. But I had to lie still in my watery bed, with my covering of rushes.

The life of the farm began; the cows were driven in to be milked, and the horses were brought down to water at the further dam. The birds started their daily hunt for food, and close to me, so close that I could almost touch them, a brood of young teal, little powder-puffs afloat, came foraging for their breakfasts. And I lay very still.

Reinie came out of the house. He called for his horse, mounted and rode off out of my sight. He would wonder where I might be, since I had told no one of my plan. Then, with a swish of wings, a party of black-duck swooped low over the dam, dropped their under-carriages, and landed with a splash. I lay stiller than ever.

The sun rose higher in the sky, and I wondered what the time might be. About eight o'clock, I guessed, but hoped that it was later. While I lay there in the warm water I was all the time watching the ridge where the bustards usually posted their sentry. Presently I saw him, standing up and idly picking at something at his feet. Though he was a long way distant he looked very big standing there, and my heart beat faster. But I lay still and watched him.

As the day wore on it started to get very hot; my head and shoulders felt as must feel a well-cooked steak. My feet and legs were getting cold. Why had I ever started on this crazy scheme? I was afraid of dropping off to sleep, and of letting the rifle fall into the mud. I was very hungry, and I lay very still.

There is little point now in enlarging on the miseries of that awful day; why I did not give up and go home, I cannot imagine. But at very long last the sun started to fall, the heat to grow less intense, and a shadow of hope to grow in my mind. The sentry was now out of sight, and I dared to stretch a little, to try to find a more comfortable position, and to ease the rifle forward so that I might be able to aim and to shoot quickly if the great moment should ever arrive.

I heard a sound behind me, and very slowly and cautiously turned my head. The teal were back, mother and the four powder-puffs; they were feeding quite unconcernedly within six feet of where I lay. Then I looked again towards the spot where the bustards were, generally, used to feed.

They were there. How these great birds had contrived to arrive so silently is beyond my imagination. They looked as big as elephants, and were feeding quietly, without a sign of fear. The big leader was out by himself. Very slowly I raised the rifle, sighted at the base of his neck, and fired.

The rest of the flock clamoured away. The big leader lay still.

I got stiffly to my feet, picked him up, and staggered slowly towards the house, feeling a queer mixture of triumph, and of having made a complete fool of myself.

I was very tired. He weighed thirty-six pounds. The little teal must have been scared nearly out of their lives.